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REPORT

For the six months period
January 1, 1984 to June 30, 1984.

PUBLIC HEALTH DEPARTMENT

WESTERN AUSTRALIA

22501397217

HON MINISTER FOR HEALTH

Sir,

In accordance with Sub-Section 104(3) of the Health Legislation Amendment Act 1984, we have the honour to submit the last report of the Department of Public Health which is for the half year January 1, 1984 to June 30, 1984.

As in past years the report comprises individual reports from the Directors and Heads of Branches, and from a number of statutory committees. These, together with the supporting statistical data, provide a comprehensive account of the Department's activities during the six (6) month period.

The amalgamation of the Public Health Department, Hospital and Allied Services and Mental Health Services, with effect from July 1, 1984 may see some changes in the public health sector in the future. There is every reason to believe however that the new corporate structure will see the development of a dynamic and progressive approach to health service delivery throughout the State, and at the same time ensure the interest and expectations of both the consumer and the providor of the services are fully recognised and, where practicable, are met.

May we take this opportunity to express our sincere gratitude to the staff of the Public Health Department at all levels for their continued assistance and support.

Dr W D Roberts
FRCS., FRACS., FRACGP.,
MHP., FRACMA.

COMMISSIONER OF HEALTH

Dr J C McNulty
JP., MB., BCH., BAO., MFOM.,
DIH., DPH., FRACMA., FACOM.

EXECUTIVE DIRECTOR
PUBLIC HEALTH AND SCIENTIFIC
SUPPORT SERVICES

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Appendix I

LEGISLATION

Legislation undertaken during the period under review was:-

PODIATRISTS ACT

This Act was assented to by the Lieutenant Governor and Administrator on May 18, 1984 and will come into operation on a date to be fixed by proclamation.

This Act repeals the Chiropodists Act 1957 and introduces a rewritten Act which includes several changes in the registration system for chiropodists - one of which was a change in the title of the practitioner from "Chiropodist" to "Podiatrist" to conform with this change recognised elsewhere in this profession.

The Act will be proclaimed when an additional Board Member, to represent an education authority, has been appointed and when amending Regulations have been made following their submission by the Board.

HEALTH LEGISLATION ADMINISTRATION ACT 1984

This Act was proclaimed on June 15, 1984 to come into operation from July 1, 1984.

This Act proposes to co-ordinate the administration of the Acts to which this Act applies and to facilitate the effective and efficient provision of health and related services to the people of the State.

HEALTH LEGISLATION AMENDMENT ACT 1984

This Act contains a provision that it shall come into operation on the day that the Health Legislation Administration Act 1984 comes into operation.

The Act proposes to amend certain Acts to make better provision for their administration and for related purposes. The main thrust of the Act is to redefine the references to titles of certain office bearers and names of departments involved in the amalgamation to form the Health Department of Western Australia.

REGULATIONS, ORDERS

Orders and amendments to Regulations made during the period under review were:-

CLEAN AIR ACT

An Order was made on March 2, 1984 to amend the Schedule detailing scheduled premises to include sand screening, rock screening, etc. as scheduled premises.

A further Order was made on May 4, 1984 to prohibit the use of dry abrasive blasting, except in a grit room or grit chamber, within the Municipal District of the City of Bunbury.

CLEAN AIR REGULATIONS

Regulation 4 was amended on March 2, 1984 to substitute the words "Section 23(2)" for the words "that subsection" as the reference to Section 23(2) was deleted from the Regulation in 1983 and left the words "that subsection" in subsequent sub Regulations without meaning.

On June 15, 1984, Regulation 14 was amended to include the word "for licenses" after the words "the fees payable" to clarify what was meant by that phrase.

HEALTH LEGISLATION AMENDMENT REGULATIONS

These Regulations were made on June 29, 1984 to amend and retitle the reference to the titles of "Public Health Department" and "Commissioner of Public Health" and all similar phrases in existing Regulations made under the various Acts administered by the Commissioner of Public Health, prior to the proclamation of the Health Legislation Administration Act 1984. The Schedule attached to the Regulations detailed the substituted titles in each Regulation concerned.

HEALTH LABORATORY SERVICE (FEES) REGULATIONS

These were amended on March 30, 1984 to repeal Regulation 3 and substitute a new Regulation to reflect changes made in the Commonwealth Health Insurance Act, (Variation of Fees and Medical Services) Regulation Numbers 26, 27, 28 and 29 in respect to fees to be charged for the various pathology services.

HEALTH FOOD AND DRUG REGULATIONS

Amendment made March 30, 1984 prescribes new standards, contents and labelling requirements for artificial sweetening substances, low joule (formerly calorie) foods, carbohydrate modified foods, formula dietary foods, confectionary, fruit and fruit products and new alcohol levels and labelling requirements for spirits and liqueurs.

The amendments provided that the new requirements for spirits and liqueurs do not come into operation until 12 months after the date of gazettal to permit industry to clear existing stocks.

HEALTH - FOOD HYGIENE REGULATIONS

These were reprinted on March 9, 1984 and included all amendments made since 1961.

HEALTH (MEAT INSPECTION AND BRANDING) REGULATIONS

Amendments were made on January 27, 1984 to provide for:-

1. the inspection of the meat of deer;
2. deletion from the Regulations of Drakesbrook Health District and its brand;
3. inclusion of Bruce Rock and Waroona Health Districts and their respective brands;
4. allocate the Shire of Bruce Rock an appropriate scale of meat inspection fees;
5. allocate an appropriate higher scale of fees for:

    City of Bunbury
    Shire of Capel
    Shire of Denmark
    Shire of Dardanup
    Shire of Woodanilling

A further amendment was made on March 9, 1984 to amend the shape of the brand design for the Shire of Waroona.

Another amendment made on May 11, 1984 deleted Scale G and prescribed three new scales of meat inspection fees for Shires to be described as Scale G, Scale H and Scale I in order to provide two additional scales for intermediate levels between the present Scale F and the previous Scale G.

The list of Shires to which the various scales applied was amended accordingly and the Shires of Capel and Northam were allocated the new Scales of G and H respectively.

HUMAN TISSUE AND TRANSPLANT ACT

An Order was made on May 4, 1984 to prescribe that Section 29(1) of the Human Tissue and Transplant Act 1982 does not apply to the sale or supply of products manufactured from human tissue and used for the various diagnostic procedures and therapeutic purposes prescribed in the Order.

NOISE ABATEMENT ACT

The following 1984 Exemption Orders were made during the period under review on the recommendation of the Noise and Vibration Control Council -

January 27, 1984	Hyde Park Festival
January 27, 1984	W.A. Symphony Orchestra, Parkerville
January 27, 1984	W.A. Symphony Orchestra, Supreme Court Gardens
May 4, 1984	Centenary Avenue Construction Programme
May 4, 1984	Tree Chipping (City of Canning)
May 18, 1984	Tree Chipping (City of South Perth)

PHARMACY ACT REGULATIONS

These Regulations were amended on February 10, 1984 to increase the following fees in Appendix B.

- For registration of a pharmaceutical chemist - from $25.00 to $30.00.
- For renewal of the registration of an existing pharmacy - from $28.00 to $60.00.

PHYSIOTHERAPISTS ACT REGULATIONS

These were amended on May 4, 1984 to prescribe revised qualifications acceptable for registration purposes and to provide that where an annual license fee is not paid by February 1 in each year the licensee's name will be struck from the register and that a restoration fee and the license fee is to paid before the name can be restored.

Regulation 19 was repealed and substituted to allow physiotherapists greater lattitude in telephone directory entries.

POISON ACT REGULATIONS

An amendment, made on April 6, 1984, inserted a new Regulation 38B to prescribe the same controls to buprenorphine as applies to methadone in Regulations 51C, 51D and 51E.

RADIATION SAFETY (QUALIFICATIONS) REGULATIONS

The Regulations were amended on April 19, 1984 to allow for the insertion of a new schedule to the Regulations to prescribe fees for the various examinations or parts thereof undertaken by persons desiring to engage in the use of irradiating apparatus for chiropractic radiography, or other examinations conducted by the Radiological Council.

Appendix II

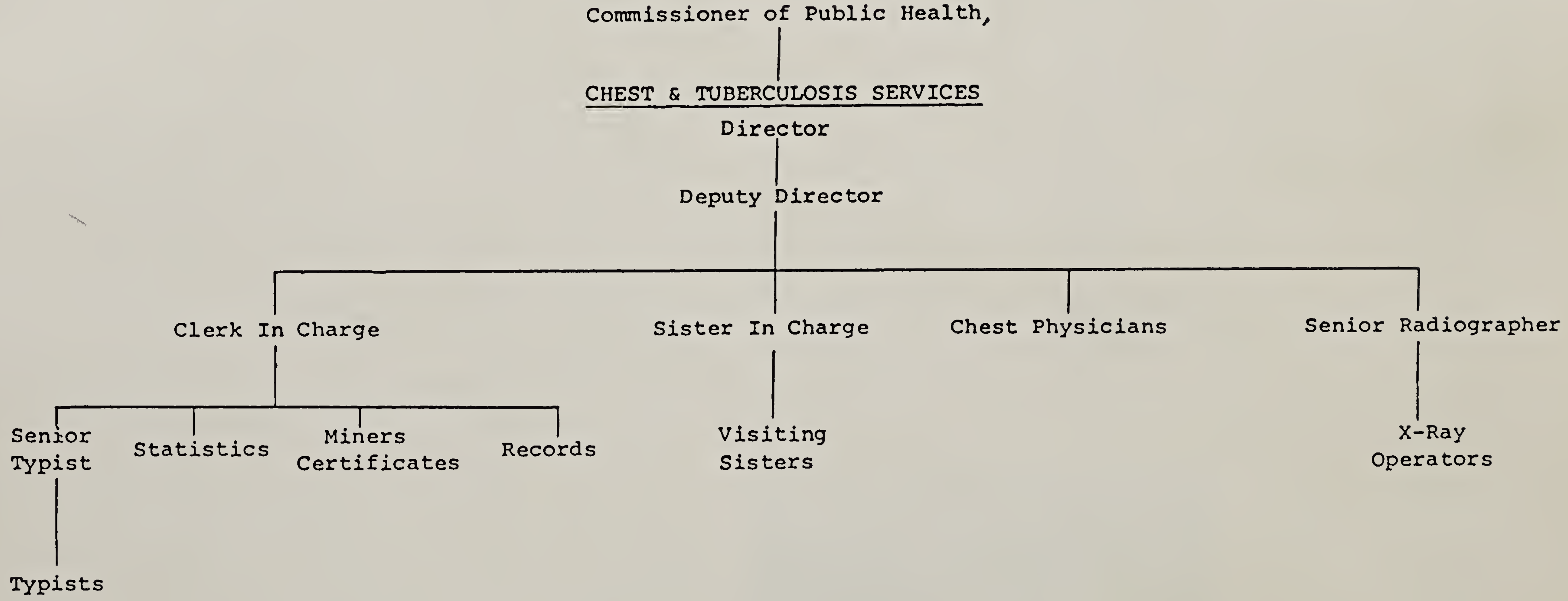
CHEST AND TUBERCULOSIS SERVICES

J.T. Cassidy
M.D., F.R.C.P., F.R.A.C.P.
Director

SENIOR STAFF

Director : Dr. J.T. Cassidy
Deputy Director : Dr. H.S. Chan
Sister in Charge : Sr. A.B. Elliot
Senior Radiographer : Mr. R. Ward
Clerk in Charge : Mr. R. Fryer

CHEST AND TUBERCULOSIS SERVICES - ORGANIZATION CHART



CHEST AND TUBERCULOSIS SERVICES

The total notifications for tuberculosis for this six months was 70 - this is about average. Of this 58 were pulmonary and 12 were non-pulmonary.

Of this number 17 were Vietnamese and this is made up of 13 with pulmonary disease and 4 with non-pulmonary disease.

There were two reactivations during this period. The first was originally diagnosed as tuberculosis in 1946 and later on when drugs became available was given a short course of streptomycin and PAS but nothing that would nowadays be considered as adequate. His organisms were fully sensitive to all drugs.

The second was a 67 year old lady who had previously been diagnosed as having M. intracellulare infection in 1962. She remained well during the intervening years but recently had developed a productive cough and associated night sweats.

X-ray showed that she had indeed deteriorated and her sputum yielded a growth of M. intracellulare.

Again it can be said now that as regards M. TB infections no case that had received what we now consider adequate treatment had reactivated.

There were 4 deaths during this period attributed to tuberculosis.

The first was an aboriginal male, aged 51. He came in with extensive bilateral disease but we never obtained a positive bacteriological finding. He was totally non-compliant and refused to take drugs while in hospital. He was transferred to the Pinjarra Hospital and eventually refused to stay there. He became unconscious shortly after leaving the hospital and was taken back to the hospital where he died.

The second death was a 91 year old man. His x-ray showed widespread changes of chronic airflow obstruction with a superimposed infiltration in both upper zones. Sputum culture since his death yielded M. kansasii. As this man died rather suddenly in hospital, it seems unlikely that his death was directly attributable to his mycobacterial infection.

The third death was an 85 year old lady who died two weeks after admission to hospital. She had miliary tuberculosis with extensive involvement of the bone and other parts of the body. Since her death the sputum has yielded a growth of M. TB.

The fourth patient was a 70 year old man who was being treated for chronic myelogenous leukaemia with busulphan. He was noted to have shadowing in his lungs consistent with miliary tuberculosis and died very shortly after reaching hospital. Again his sputum later grew M. TB.

Earlier this year Fremantle Chest Clinic closed down on 2/3/84. It was opened in 1953 and gave excellent service to this area during its 30 years of operation.

Appendix III

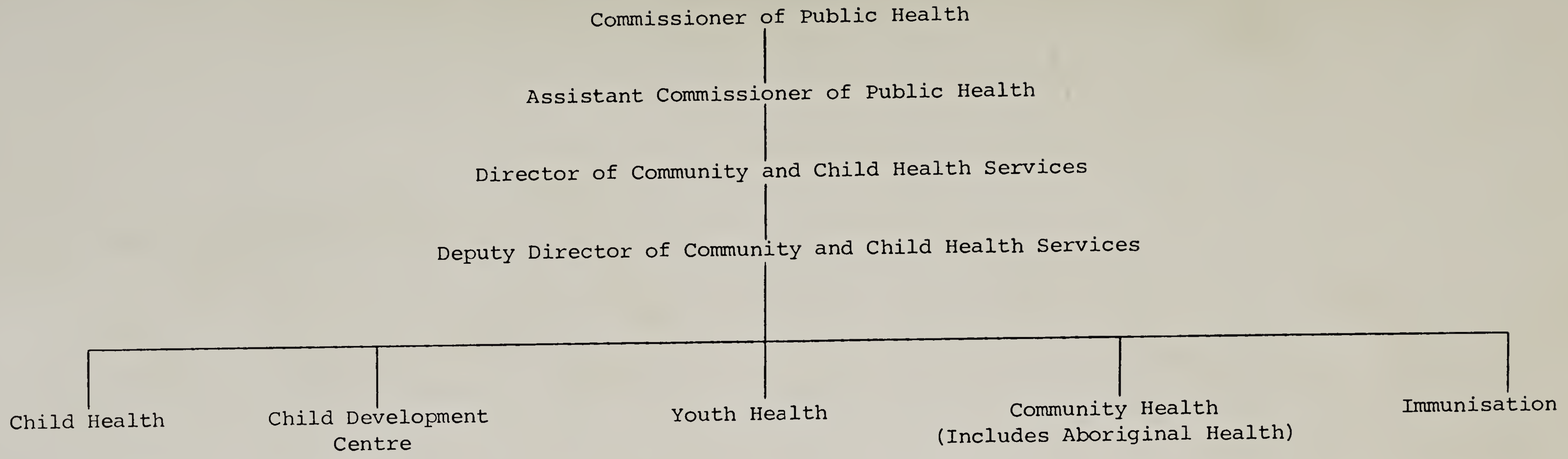
COMMUNITY AND CHILD HEALTH SERVICES

C.F. Quadros,
M.B., B.Ch., B.A.O., D.P.H.
Director

SENIOR STAFF

Director : Dr. J.T. Cassidy (acting)
Deputy Director: Dr. D.G. Hicks (study leave)
Senior Medical Officer, Child Health: Dr. B.J. Robson
Senior Medical Officer, Community Health: Dr. J.S. Gill (acting)
Senior Medical Officer, School Health: Dr. M.J. Gibson
Senior Paediatrician, Child Development Centre : Dr. T.S. Parry
Consultant Paediatrician : Dr. T.R. Henderson
Senior Medical Officer, Epidemiology & Special Services : Dr. R. Allen
Medical Officer, Youth Health Services : Dr. S.I. Robertson
Nursing Supervisor, Child Health : Sr. N. Chidlow
Nursing Supervisor, Community Health: Sr. E.D. Panter
Nursing Supervisor, School Health: Sr. L.D. Keddie
Assistant Administrative Officer: Mr. R.W. Fryer (acting)

COMMUNITY AND CHILD HEALTH SERVICES - ORGANIZATION CHART


Commissioner of Public Health
Assistant Commissioner of Public Health
Director of Community and Child Health Services
Deputy Director of Community and Child Health Services
Child Health
Child Development Centre
Youth Health
Community Health (Includes Aboriginal Health)
Immunisation

COMMUNITY AND CHILD HEALTH SERVICES

A. ADMINISTRATION

1. STRUCTURE

The structure remains the same as for 1983. During this period, however, changes are anticipated with the forthcoming new department starting on July 1, 1984.

No determination has been made on how the regions will operate thereafter, and the relationships with the metric system are yet to be determined.

2. STAFF EDUCATION AND TRAINING

2.1 Medical Officers

Medical officers participated in a series of workshops, discussions and lectures held in Perth in June.

2.2 Nurses

Nurses participated in orientation programs, second monthly meetings, quarterly meetings of all Community and Child Health Services in the metropolitan area and in Regional workshops.

Nurses inservice education meetings were successfully held during April/May in Northam, Geraldton, Katanning and Bunbury.

2.3 Aboriginal Health Workers

11 Aboriginal health workers continue to receive on-the-job training, and during January to June the following workshops were held:-

East Kimberley	06/3/84 - 09/3/84 in Kununurra
West Kimberley	12/3/84 - 16/3/84 in Derby
Pilbara	13/3/84 - 17/3/84 in Sth Hedland
Central	26/3/84 - 30/3/84 in Geraldton
Eastern Goldfields	09/4/84 - 13/4/84 in Kalgoorlie
Metropolitan/Sth West	09/5/84 - 13/5/84 in Perth
East & West Kimberley/ Pilbara	21/5/84 - 25/5/84 in Broome (Bi-Regional)
Central	23/5/84 - 25/5/84 in Geraldton

3. FINANCE

Expenditure control and staff recruitment, particularly for remote areas for doctors and nurses, continue to remain a problem. The out-turn at the end of the financial year was expected.

The budget when compared with the appropriation showed an overspending in contingencies of $180,000, which was offset by additional Commonwealth Revenue as approved for carryover by the Department of Aboriginal Affairs, the salaries budget was slightly underspent.

4. VEHICLE REPLACEMENTS

	1983 Ordered	1984 Supplied
Department of Aboriginal Affairs	11	11
Community Health Programme	1	1
State Funded) Child Health -1) School Health-1	2	2

5. BUILDINGS

There were no new buildings opened during the period 1/1/84 - 30/6/84.

B. CHILD HEALTH SECTION

1. PREAMBLE

It has been identified that one person in three in Australia now is under 16 years of age; and in Western Australia approximately one in ten of the population is aged 5 years and younger.

Families with children under 5 years old are the special area of interest and responsibility of the Child Health Services in the community. There are approximately 22,000 live births notified in Western Australia every year which gives a target population of at least 110,000 infants and young children, all of whom are potential clients at Child Health Centres.

It is well documented that 10% of children in this age group will need help of some sort in their early years during which growth and development are at their most rapid compared to any other period of life.

It follows, therefore, that nurses working in this special area of primary contact with infants and young children and their families must have a sound knowledge of child growth and development, normal and abnormal; must be well-trained and experienced in the techniques and interpretations of results of health and developmental screening tests; and must be competent in clinical, interactional and communication skills.

2. AIMS AND OBJECTIVES

The fundamental aims and objectives of child health services are to reach every child in the target population to ensure optimum physical, emotional and social growth and development so that they are capable of achieving their full individual potential in adult life.

This is undertaken through on-going health surveillance with referral for diagnosis; to contribute in every possible way to the quality of family life; to help parents gain the confidence and knowledge to be better parents who enjoy their children; and promote healthy living.

The needs of the community are changing and, on the one hand, most parents are motivated to improve the quality of life of their children and are seeking personal support and more information on the stages of child development and behaviour, and the child's needs that must be satisfied for him to become a competent individual.

On the other hand, the low socio-economic and socially disadvantaged families who do not on the whole avail themselves of community facilities, are particularly vulnerable and need increasing support and a home-based delivery of health surveillance with the long-term objective of their eventual use of the existing community facilities.

3. FUNCTIONS

The functions of the Child Health Section are summarised as follows:

Parent Support	-	Individual
	-	Groups
	-	Self-help groups
	-	Other agencies
Health Surveillance	-	Hips
	-	Vision
	-	Hearing
	-	Speech & language
	-	Developmental progress
	-	Growth Assessment
	-	Physical anomalies
	-	Emotional status
Prevention	-	Antenatal health
	-	Nutrition
	-	Immunisation
	-	Accidents
	-	Family planning
	-	Play-at-Home programme
	-	Developmental guidance

Parent Education	- Expectant parent classes
	- Post-natal classes
	- Individual contact
	- High schools Year 9
	- Groups eg. PIMS, CYSS centres, lectures etc.
Outreach to non-attenders	- News media
	- Community projects & lectures
	- Home visits
	- Child care centres
	- Liaison with other agencies

4. FACILITIES STAFF

1984		Metro	Country	Total
No: Child Health Clinic Facilities		143	215	358
No: Child Health Nurses in Clinics		76	46	122
Special Areas:				
- Metro Area:				
Senior Nurses	3			
Schools Resources	4			
Children's Day Care Health Team	4			
Correspondence Section	2			
Relieving Staff	7	20		
- Country Area:				
Senior Nurse			1	143

5. PARENT SUPPORT

There is a vast need in all sectors of society for the support of parents ranging from the anxieties of the new mother to the complex social/emotional problems emerging in all family groupings.

The reason for this is the changing structure and function of many families due to a variety of factors. There are more single parents from separation, divorce, desertion or non-marriage; more marital disharmony, more working mothers, increased mobility and less social contact and extended family support. There is more depression and social isolation of families, especially young mothers. The effect of many of these changes on child rearing is destructive to normal development. There is a growing population of migrant families who are in need of understanding and help.

Support and advising parents on what to anticipate in terms of health needs and behaviour are given in the clinic setting and in small groups of mothers with the same problem.

The nurses in the field must, therefore, be readily accessible as resources for parents; and they require knowledge of family functioning and interpersonal relationships; they must acquire listening skills and how to lead group discussions. They must also know the limitations of their role and when to refer. Group work is a growing pattern of service to clients and the main areas for group support are identified as follows:-

- early postnatal
- first-time mothers
- management of 2 year olds
- isolated and lonely mothers
- crying babies
- specific parental requests

Mobile task forces eg. PIMS (Play Information Mobile Service) and Play at Home programmes, are increasingly important in the overall support role.

Written correspondence to isolated mothers, and telephone consultations continue to flourish through the Correspondence Section.

6. HEALTH SURVEILLANCE

Screening for physical, sensory, intellectual, emotional or social disabilities is an integral part of the periodic health surveillance of young children up to the age of school entry. It also includes developmental guidance to the parents concerning developmental stages and behaviour and appropriate play activities etc. Contacts with the child are frequent early in life because changes are rapid. Early detection of any problem is essential for its treatment, control or management.

The nurse is required to know the normal and must refer the deviant children for full assessment to appropriate facilities. She has an ongoing responsibility to oversee the progress of the family she has referred in order to provide continuity of contact.

Assessment facilities are readily available in the Perth metropolitan area via the Child Development Centre and the local multidisciplinary teams at Koondoola, Queens Park and Southwell. However, there are no centres providing diagnosis, treatment and management of developmental disabilities elsewhere in the State.

7. PARENT EDUCATION

The most important community job, parenthood, is about the only work task that has no prior training.

Parenting skills have often to be taught these days and it is essential that a mother is told why her baby is doing certain things, what she can expect him to do in the near future and how she can help him so that her understanding and confidence are increased (developmental guidance).

Cultural and social changes have increasingly led parents to seek advice about child rearing, their child's health, safety and development. New parents are often geographically isolated from extended families and many have had little previous opportunity to observe child rearing experiences.

High-quality family life education including education for responsible sexual behaviour is of paramount importance, and may possibly break a cycle of deprivation for many teenagers. The Schools Resources Section need every encouragement in this area.

7.1 Parenthood Education is provided by child health nurses through expectant parent classes which prepare parents for their child's birth and promote early parenting skills and are offered in West Perth and in all the peripheral metropolitan and most country hospitals.

7.2 The Schools Resources Section of four child health nurses provides preparation for parenthood classes for year 9 secondary school students via self-selected teachers by invitation of headmasters.

The 1 term course promotes understanding of the needs and nurturing of young children, encourages awareness of the students' attitudes acquired from their own experiences and presents quality family life education including education for responsible sexual behaviour. Three lessons are given by the nurse and the rest are conducted by a teacher who has attended the 1 day intensive training course given by the nurses.

7.3 The Play-at-Home Programme is home advice given to selected disadvantaged families to promote a positive parent/toddler interaction through the medium of play. The nurse visits the home taking a new toy weekly for 12 weeks, and the nurses involved also meet weekly with the occupational therapist as group leader to discuss problems and progress. This has proved effective as a positive learning experience for parents and for nurses.

7.4 PIMS (Play Information Mobile Service) is a service provided by two child health nurses with back-up from an occupational therapist. They travel in a gaily painted van to parent groups on request to discuss play and child development and other related topics of interest to the individual group. The van contains play material especially "junk" with which to construct interesting cheap toys and activities. 163 groups visited during the 6 months; two displays organised in May at the Belmont and Bull Creek shopping centres.

Probably one of the most valuable aspects is that parents are stimulated to talk together about ideas and problems and come to realise that their child's behaviour is normal for the stage of development. The requests come from parent groups in private homes, play groups, women's refuges, Y.M.C.A., CYSS etc. in all suburbs, and information is sent on request to country and remote areas.

8. OUTREACH TO NON-ATTENDERS

A minority of the community do not avail themselves of community health facilities and it is probably this sector in most need of assistance. Surveys have revealed that there is a high incidence of ill-health, handicaps and social problems in the lower socio-economic groups in our society compared with the more affluent sector. The races involved in this minority comprise Caucasian, Aboriginal and Mongoloid, although the latter are more capable of self help.

The concept of nursing Outreach is to identify the mothers of young children not attending Child Health Centres and offer them a home-based delivery of health surveillance. They need considerable support in the social/emotional areas for a lengthy period to enable them to take control again of their own lives and seek out their own support system, and make use of the existing community services i.e. child health, immunisation, family planning, dental clinics and early educational centres.

Home visiting is a very important function; it is difficult and time consuming but is nevertheless the quickest and probably most reliable way of finding out how the family functions, what the relationships are within the family and also the standards of child care.

With time an efficient grass-root network of community referrals and self-referrals are forthcoming, and the nurse catalyses the development of many community projects, both educational and recreational.

In this work liaison with all other community agencies is essential, from the local chemist to the Department of Social Security, and much support is received from them.

As stated previously the aim of Outreach is to help families to eventually become self-reliant and able to make their own decisions on the basis of being well informed.

Outreach to the children placed in day care in the metropolitan area is provided by the Children's Day Care Health Team through an integrated preventive child health service and health education and advice to the caregivers and parents. Health screening and assessment are undertaken, and management given, through a small multidisciplinary team of medical officer, child health nurses (4), social worker and speech therapist.

Health surveillance of this vulnerable group of children is not a statutory right as with school children, and diplomacy and tact on the part of the nurses is essential to ensure entry into the child care centres. The majority of private family care centres are covered by the child health clinic nurses, and a consultancy type service is offered by the team to the co-ordinators of subsidised family care schemes. There is a strong liaison with the Department for Community Welfare who is responsible for the licensing of centres.

The child care area will be expanding from this financial year due to a large amount of funds allocated from the Federal Government, and it is envisaged that the child health surveillance service cannot be offered to new centres due to the present staff restrictions.

9. SPECIAL PROJECTS

9.1 Congenital Malformations Register

The nurses continue to be involved in completing a Congenital Malformations Notification card whenever an appropriate child is identified, and the information sent to Dr. Fiona Stanley at N.H. & M.R.C. Unit for inclusion in the register.

9.2 Thiamine Survey

This survey was commenced in March, 1982 and forms part of a research study undertaken by the Department of Haematology Research Unit, Royal Perth Hospital, to determine the normal thiamine blood level of babies from 6 weeks to 6 months of age, and to be studied in relation to Sudden Infant Death Syndrome. Approximately 8,500 heel-prick blood samples have been taken by child health sisters in the centres up to the end of June, 1984.

9.3 Feeding Practices and Growth in Infancy

In 1984-85, Western Australia and Tasmania is, with the concurrence of the W.A. Health Department/Child Health Services, conducting a joint survey of infant feeding practices and growth to one year to determine if differences between the two States remain after 5 years, and what the present status of breast feeding is.

In Western Australia, a sample has been statistically selected from the entire State to include 16 Child Health Centres in the metropolitan area and eight in the country. The infants in the sample are a proportion of those born between the 1st May 1984 and 31st October 1984. The data is, as in the 1979 survey, being extracted by personnel from the Princess Margaret Children's Medical Research Foundation. The extra work for the clinic sisters is limited to the provision of a monthly list of consecutively born infants in each centre.

C. CHILD DEVELOPMENT CENTRE

Dr. T. Parry reports:

The Child Development Centre has continued its usual functions which embrace clinical, educational, resource and research activities.

1. CLINICAL WORK

Referrals have escalated throughout the year as shown below:

TABLE 1

REFERRAL PATTERN

1982	1,437
1983	1,676
Jan-June, 1984	894

Table 2

PROFESSIONAL LOAD

Profession	Total Referrals		
	1982	1983	Jan-June 1984
Paediatricians	510	583	266
Social Workers	195	241	126
Occupational Therapists	73	79	64
Psychologists	254	269	144
Physiotherapists	76	150	111
Speech Pathologists	223	242	142

The bulk of referrals have continued to require paediatric input (266) though psychology referrals have increased to 144. There is a need for a full-time psychology appointment to the Centre and demands in all areas of psychology and in particular clinical psychology are pressing. It should be pointed out that the Centre has no full-time psychologist, this being the only discipline in the multidisciplinary team that is not represented by a senior appointment.

The numbers of children seen during the six months period both as new cases and for ongoing treatment as well as those followed up by telephone contact or seen in other units are listed in the following table:

TABLE 3

CLINICAL COMMITMENTS

	1982	1983	Jan-June 1984
New cases seen	1,374	1,654	738
Review appointments	1,680	1,786	1,017
Ongoing treatment	3,096	3,285	1,275
Telephone follow-up	9,122	7,617	6,300
Patients seen elsewhere	1,549	1,785	1,155

Sources of referral have been distributed as indicated in the following table:

TABLE 4

SOURCES OF REFERRAL

	1983		Jan-June 1984	
Within the Service	No.	%	No.	%
Child Health Nurses	487	29.06	236	26.40
Internal from CDC Team	293	17.48	26	2.91
Medical Officers of C & CHS	117	6.98	57	6.38
School Health Nurses	31	1.85	12	1.34
Preschool Nurses	21	1.25	12	1.34
Community Health Nurses	1	0.06	2	0.22
	950	56.68	345	47.20
Outside the Service				
Medical Specialists	59	3.50	96	10.74
General Practitioners	151	9.00	76	8.50
Education Department -				
Guidance Officers	122	7.30	90	10.07
Teachers & Principals	29	1.70	16	1.79
Direct Parent referrals	135	8.10	77	8.61
Dental Health	2	0.12	1	0.11
KEMH & PMH	146	8.70	84	9.40
Community Welfare	20	1.20	1	0.11
Adoptions Branch			5	0.56
Miscellaneous	62	3.70	26	2.91
	726	43.32	472	52.80

It is noted with some concern that there has been a diminishing number of referrals from child health nurses. The reason for this is being investigated and it is the cause for some concern particularly as the Child Development Centre was predominantly available for the early identification and assessment and management of children with developmental disabilities in the preschool years. This is so that early intervention strategies can be determined. Increasingly the Centre is being required to be involved in school age problems. Referrals from guidance officers and other educationalists remain high, but there would be less concern if there was an increase in referrals of young preschool children to the district based Child Health Service Centres, particularly if these centres were serviced by a full team including a paediatrician. This is not so, and it is wondered with some concern as to where young preschoolers with developmental problems are being serviced. Referrals from family practitioners have fluctuated, and it is pleasing to see that general practitioners are continuing to use the Centre. Priority of attention in all of the disciplines continue to be given to young preschool children and their families so that early intervention programmes can be offered but this can only happen if referrals from child health nurses continue satisfactorily.

2. EDUCATIONAL ACTIVITIES

Students continue to be involved in the Centre which has a regular involvement with medical students as part of their Social and Preventive Paediatric programme.

The Child Development Centre staff continue to be involved in lecturing commitments as well as clinical involvement at King Edward Memorial Hospital, Princess Margaret Hospital, Koondoola and Willetton Special Schools and Ngala.

3. CONFERENCES

The Senior Paediatrician attended the Annual Meeting of the Australian College of Paediatrics in Adelaide from May 22-24, 1984. Ms. Sue Brooks, Physiotherapist, attended a Development Paediatric Course in Brisbane from June 1-16, 1984.

D. YOUTH HEALTH SERVICE

Dr. S. Robertson reports:

In June 1984, the Youth Health Service completed its first twelve months at its Cook Street, West Perth, premises.

The first six months of 1984 saw the consolidation and development of work commenced in 1983. There has been increasing recognition by government, non government and voluntary agencies who work with young people of the appropriateness of a youth health team with whom they can work and interact.

1. RESOURCE, EDUCATIVE AND ADVISORY ROLE

Involvement in community youth work committees at all levels has been important to the provision of support, training and resources (and of health maintenance) for youth workers, young people in leadership roles, and young people in need. Such committees and organizations include the Youth Accommodation Coalition, Community Youth Support Scheme, Perth Inner City Youth Service, Cave Drop In Centre, Household Network and the Community Street Workers program.

This involvement lead to the development of further contacts which enable staff to be part of the support network required by difficult to work with young people, who also have a variety of health problems. The support, as required, of approximately one hundred nurses, youth workers and social workers occupied a significant proportion of the social worker's time.

1.1 The health education of young people at the Perth and Centre Care Community Youth Support Scheme centres has been a regular commitment. Health education has also been provided on request to a variety of other groups of young people and workers with young people.

1.2 Youth Health Unit, Associate Diploma in Community Youth Work at Claremont College

This thirteen week unit, to commence in July is to include sessions on physical and behavioural development of young people, sexuality and pregnancy, nutrition, psychosomatic and chronic illness, community health development, alcohol and drug abuse, psychiatric problems, and health services and resources for young people. It is perceived as a landmark in youth work both in Western Australia and nationally.

1.3 Youth health service staff have been instrumental in the commencement of a Western Australian Branch of the Australian Association for Adolescent Health. Through committee meetings, seminars and a newsletter, further education and co-operation is envisaged between general practitioners, teachers, nurses, and all who work in the field of youth health.

1.4 All fifth year medical students now have a lecture on adolescent development and health. Examination written and oral questions are being phased in. Educational input to students and hospital staff of several disciplines is also provided in a variety of settings.

1.5 Student attachments, social work, youth work, nursing and medical students have been placed for varying periods at the Youth Health Service and participated in unit activities including research. A fourth year social work student was placed full-time for one semester and was a valuable assistant to staff.

1.6 Dr. Martin Wolfish a physician in adolescent medicine and Chief of Paediatrics at North York Hospital, Ontario, visited from May 14-18, 1984 as a Postgraduate Federation Lecturer. His visit was organised by staff. He provided valuable teaching for many groups on a variety of topics including Violence and Delinquency, Teenage Pregnancy, Sexually Transmissible Diseases, and Behavioural and Learning Problems.

1.7 Presentations have been made in numerous settings to many different groups including University Extension Courses, the United Nations Youth Association, social workers and nurses at Royal Perth Hospital and King Edward Memorial Hospital, Colleges of Advanced Education staff, and the Cystic Fibrosis Association.

1.8 Community Youth Work Development

A project initiated in 1983 at the instigation of general practitioners in one local government area is continuing. The current role of Youth Health Service staff is to provide extra ideas and support on a consultant basis.

A further project is underway with one of the high schools which is seeking assistance in developing community linkages. Such work is seen as being an effective means of promoting youth health, and preventing youth health problems.

Kalgoorlie - Youth Health Service staff visited Kalgoorlie at the invitation of the Regional Director of Health together with Dr. Ian McAlpine, Psychiatrist Superintendent at Hillview Terrace Hospital, and Mr. David Higgins, Senior Education Officer with the Alcohol and Drug Authority. Forty people attended the two day seminar, and a network group was created which planned to continue to work together to improve health care for youth in the area.

1.9 Telephone calls of an advisory, resource and educative nature would average at least twelve a day.

2. CLIENT CONTACT

A further seventy young people have been seen for assessment and management. Again they have been referred by general practitioners, school health personnel, hospital staff, youth workers, social workers, teachers and a variety of others who work with youth. These young people continue to be those with a variety of problems, whose care is time consuming and demanding.

In addition there is contact with many of the young people who were new clients last year. This is particularly so for those who are continuing pregnancies, or who have delivered their infants.

3. RESEARCH

3.1 Attitudes Towards Health Services of Young Mothers Seventeen Years of Age and Under

This research project commenced in May. At the end of June twenty of the planned one hundred young mothers had been interviewed. It is likely that a further six to twelve months will be required for completion of the project. This research is seen as being essential for the further understanding of the problems inherent in providing health care for this group of young people.

3.2 The Utilization of Health Services by Inner City Youth

This project was piloted by the fourth year social work student and the social worker. It is planned that it will be developed further when resources permit.

4. OTHER ACTIVITIES

4.1 Planning for International Youth Year in 1985 has commenced. Representation is undertaken for the Minister for Health on the State Co-ordinating Committee and the Government Department Subcommittee. International Youth Year planning has been discussed with many different groups including community and regional medical officers, and nurses but considerable work remains to be done if there are to be long term benefits for young people. A pilot youth discussion day on health issues is planned for October as a preliminary to a possible conference on these issues to be organized by young people themselves in 1985.

Planning for audio visuals including tape slide presentations and videos on health issues is well underway in conjunction with the Audio Visual Unit.

4.2 The Australian College of Paediatrics Standing Committee on Adolescent Health Care (Chairperson Dr. Robertson) is working on a Curriculum for Adolescent Medicine in undergraduate and postgraduate courses, and has invited Dr. Iris Litt, Director of the Division of Adolescent Medicine at Stanford University Medical Centre to be its guest speaker at the College meeting in Hobart in 1985. It is envisaged that Dr. Litt will be visiting three other Australian cities, including Perth.

4.3 Hospital Based Projects

- Princess Margaret Hospital - an adolescent activities centre in the ward block is one of the hospital's short term objectives. The provision of an inpatient ward area is also the subject of deliberation.
- King Edward Memorial Hospital - in addition to interaction concerning the research project described, discussions have been held regarding facilities and services oriented towards the needs of young women.
- Royal Perth Hospital - the social work and nursing departments are liaising with the inner city youth street workers through Youth Health service facilitation. This is important both for continuity of care, and for prevention of further problems, for example, drug overdoses.
- Young People with Disabilities Guidance Unit - Youth Health Service staff have been involved in discussions regarding the setting up of this Unit, and the successful community employment program application for a project officer and assistant.

5. CONCLUSION

The Youth Health Service is implementing the strategies required to meet its objectives. It welcomes opportunities to work with all in the new Health Department who also work with young people.

E. EPIDEMIOLOGY & SPECIAL SERVICES SECTION

Dr. R. Allen reports:

1. IMMUNISATION

Action has been taken during the first half of 1984 to improve the immunisation status of children in Western Australia by increasing health education in this field. If this move does not prove successful, mandatory immunisation may be introduced in the future, whereby children will be required to show proof of satisfactory immunisation status before being allowed to commence Grade I.

Much preliminary work has been carried out towards computerisation of immunisation records, and it appears most likely that this will be introduced during 1985.

The following immunisations have been carried out during the first half of 1984:-

Sabin Vaccine		22,652
Triple Antigen	6,535	
C.D.T.	5,191	
A.D.T.	661	
Tetanus Toxoid	928	
Measles/Mumps	5,640	
Rubella	8,290	
Miscellaneous	48	
Total Injections	27,293	27,293
Total Treatments		49,945

2. MALARIA

19 cases of malaria have been notified so far this year. As usual approximately half originated from Papua New Guinea. Details are as follows:-

Total Number		19
Male	11	
Female	8	

2.1 Parasite Species

Plasmodium Vivax	16
Plasmodium Falciparum	3

2.2 Countries of Origin

Papua New Guinea	9
Indonesia Island staging post	2
E. Africa	2
India	2
Indonesia	2
British Honduras	1
South East Asia	1
	19

F. SCHOOL HEALTH SERVICES

Dr Gibson reports:

School health services continued to be provided for all children attending schools in Western Australia.

Activities involving school health nurses, medical officers and allied health professionals were scheduled throughout the calendar year and commenced in January 1984.

1. PROGRAMMES

These included health screening, health surveillance, health education and promotion, with counselling, first aid services, assessment and management services being provided on request.

Cardiac auscultation was excluded from the health appraisal of the young school child, commencing February 1984 following evaluation of this part of the programme from the previous five (5) years.

The scoliosis screening programme was introduced for students attending high schools and primary schools in the Pilbara region in June.

Results of staff contacts, numbers and types of screening programmes, referrals made and outcome of programmes are not available from staff statistics until the end of the calendar year and will therefore be included in the end of year report.

Metropolitan high school nurses undertook documentation of the types of social problems for which students sought their assistance in first and second terms. It has been recognised for several years that nurses counsel students at their request on a wide variety of psycho-social matters. With growing concerns about the apparent increase and complexity of many of these problems it is timely that further detail is sought.

2. SPECIAL RESEARCH PROGRAMMES

All school nurses in Western Australia participated in an enquiry into the demographic features and possible aetiology of diabetes in Western Australian school children in April. This study involved staff of the Diabetes and Endocrinology Unit at the Queen Elizabeth II Medical Centre, Princess Margaret Hospital and Health Computing Services in addition to School Health Services and received assistance with funding from TVW Telethon. All diabetic school children from pre-primary to Year 12 were identified by school nurses and their parents were invited to complete a questionnaire. Information from 'control' children was also obtained.

During first term a special screening programme was set up to evaluate routine near vision screening of Year 1 children. Children in Year 1 classes in all primary schools in Perth and in towns in the South West of the State were included. A new screening card was tested. Results from this programme will be available at the end of the year.

3. SPECIAL SCHOOLS PROGRAMMES

School health services were provided as in previous years for children attending a range of special schools; for those with visual impairment, with hearing impairment, with other physical handicaps, with intellectual handicap and with specific learning disabilities.

4. EAR HEALTH PROGRAMME

During 1984 emphasis was placed on the establishment of the R.M. amplification programme for those children with a bilateral hearing loss attending schools in remote towns of the State. The programme was continued at Halls Creek and Jigalong schools and was introduced for the first time at Holy Rosary School, Derby and at Roebourne and Wiluna schools.

In all centres staff were involved in identifying children with ear disease and hearing loss, in arranging management programmes, and in constant health reviews of the status of the ear drum and middle ear as well as in assessments of hearing. Those children with discharging ears were encouraged to participate in the ear toilet programme.

G. COMMUNITY HEALTH SERVICES

Dr. J. Gill reports:-

1. INTRODUCTION

The work done by the Community Health Section continued during the period without any major changes. No new facilities were established.

The staff in-service and education programmes included one regional conference for nurses, three bi-regional conferences for the Aboriginal and ethnic health workers in each region and a conference of Community and Child Health medical officers.

2. ABORIGINAL HEALTH

The emphasis was continued and a further three health committees were formed although some of the original ones were beginning to lose their impetus. This was largely in the south-west of the State where the communities felt that their existing Community Development Committees should include this function.

One further Regional Aboriginal Health Liaison Officer (R.A.H.L.O.) was appointed thus ensuring that there is at least one such person in each of the Regions.

2.1 Client Encounters

Table 1 shows the encounters that took place during the period. This remains a very broad indication only of the workload, but continues to show that the main activities are related to health screening and the under-fives program, although a very large proportion of the workload is for other reasons not specified within the stated groups.

Of the specific groups of diseases listed skin conditions, followed by ear and eye diseases remain dominant causes for contact with clients.

2.2 Nutritional Anthropometry

This ongoing record, besides being of immediate clinical value at the point of contact continues to provide a secular surveillance of a fairly sizeable proportion of the Aboriginal client group.

Of the 1982 cohort 68.9% were examined at 12 months of age and of the 1983 cohort 50.1% were reached.

The comparative figures for the 1982 and 1983 cohorts are as follows:-

Percentage Below 3rd Percentile at 12 Months of Age

	Weight		Height	
	Male	Female	Male	Female
1982 Cohort	14.5%	16.3%	24.3%	15.3%
1983 Cohort	22.4%	16.0%	21.9%	14.1%

The overall trend, at least with regards to height, appears to be continuing downwards, i.e. over the years, the proportion of children below the 3rd percentile is decreasing. Whilst this is encouraging the proportion is still unacceptably high. Table 1 enclosed.

3. IMMUNISATION

The following coverage rates were achieved for the 1983 cohort at 18 months of age:

B.C.G.	45.8%		
Sabin 1st dose :	82.7%	Triple/CDT 1st dose :	82.7%
Sabin 2nd dose :	75.1%	Triple/CDT 2nd dose :	74.8%
Sabin 3rd dose :	66.1%	Triple/CDT 3rd dose :	65.7%

The coverage thus continues to be quite reasonable. Client coverage is much higher than those eligible as the reporting system does not include non-clients.

4. LEPROSY

No case of leprosy was detected amongst Aboriginals in the State during the stated period.

5. ALCOHOL ABUSE PROBLEMS

As previously reported, efforts have continued into preparing visual aids for educational programmes and it is hoped that these will be available for general distribution to staff towards the end of the year.

The Department has continued to be represented on a committee looking into rehabilitation programmes for Aboriginal communities and plans are in hand to attempt to document the size and extent of the problem in different communities as such baseline information is obviously essential.

6. TRACHOMA

During the period specific surveys covered a total of 543 persons in nine communities, and in those locations where a significant number of children up to 10 years of age were examined, the findings were as follows:

Locality	Number 0-9 Years Examined	Follicular Trachoma Rate
Cundeelee	39	7.7%
Yandeeyarra	14	0
Mt. Margaret	13	0
Warburton	37	24.3%
Panaka	13	46.2%
Tardun	22	22.7%

The problem areas thus continue to be isolated communities close to the desert area, especially in the North-West.

7. GENERAL COMMUNITY

For the first time, a nurse was made available to the Diabetic Association of W.A. to assist in their programme of education for patients and professionals, and this now means that Departmental assistance in terms of staff is now available to the West Australian Arthritis Foundation, the Independent Living Centre, Muscular Dystrophy and Multiple Sclerosis Associations.

The service continues to provide services to other non-Aboriginal persons in the community such as pensioners, single parent families and the elderly where other services do not exist or are unable to provide the needed assistance or are not used. Such activities generated approximately 15,748 encounters, accounting for approximately 10% of the workload.

8. REFUGEE MIGRANTS

Full medical examination and screening of Indo-Chinese refugee migrants covered 451 persons arriving during the period. Table 2 shows the main conditions detected.

TABLE 1

ENCOUNTERS WITH ABORIGINAL CLIENTS - STATE

JANUARY - JUNE 30, 1984

ENCOUNTER CODES	0-5	6-14	15-19	20-49	50-64	65+	Unknown	Total
Under Fives Programme	18,020	425	354	1,330	45	25	3,474	23,673
Health Screening	429	8,665	359	3,434	332	188	10,236	23,643
Ear Disease	1,736	1,770	161	353	52	42	1,876	5,990
Eye Disease	486	555	63	605	362	295	1,800	4,166
Hansens Disease	119	89	112	715	422	237	312	2,006
Ante or Postnatal Care	23	26	948	1,705	6	14	665	3,387
Accidents or Injuries	310	546	261	1,318	274	92	450	3,251
Alcohol or Other Drug Abuse	2	7	5	202	50	17	129	412
Skin Diseases	1,593	3,656	471	1,704	471	205	2,827	10,927
Gastro-Intestinal Disease	556	201	40	209	57	52	71	1,186
Respiratory Disease	838	304	107	518	216	149	827	2,959
Muscular Dystrophy	4	-	-	5	1	-	7	17
Multiple Sclerosis	-	-	-	4	4	-	24	32
Rheumatoid Arthritis	1	2	-	24	38	28	13	106
Extended Care	-	-	-	-	-	-	1	1
Hospital Visits Metro.	363	345	63	437	59	53	27	1,347
S.T.D. (Kimberley)	4	10	187	372	43	18	93	727
Cardiovascular (Kimberley)	3	10	12	266	284	196	57	828
OTHER	3,493	5,152	2,170	16,905	4,805	3,440	27,090	63,055
TOTAL	27,980	21,763	5,313	30,106	7,521	5,051	49,979	147,713

TABLE 2

INDO-CHINESE REFUGEE MIGRANTS

JANUARY - JUNE 30, 1984

CONDITION	NUMBER	PERCENT
Dental Caries	149	33.0
Pediculosis	164	36.4
Scabies	99	21.9
Trachoma	27	6.0
Tinea	1	-
Pityriasis	29	6.4
Other fungal conditions	7	1.5
Other skin infections	3	-
Thalassaemia trait	14	3.1
Hb E trait	26	5.8
Other anaemia	9	2.0
Otitis media	1	-
Other E.N.T.	17	3.8
Tuberculosis	21	4.6
Syphilis/previous treponemal infection	16	3.5
Thyroid problems	8	1.8
Vision defects	31	6.9
Liver enlargement	23	5.1
Heart Murmurs	10	2.2
Bronchitis	7	1.5
Hypertension	10	2.2
Pregnant	8	1.8
Trichuris trichiura	28	6.2
Giardia lamblia	14	3.1
Ascaris	5	-
Strongyloides	4	-
Salmonella	12	2.7
Shigella	3	-
Hookworm	7	1.5
H. Nana	2	-
Orthopaedic	7	1.5
Diabetes/glycosuria	2	-
Malnutrition	5	-
Retractile testes	2	-
Psychotic	1	-
Leukaemia	1	-
Infertility	2	-
TOTAL NUMBER OF REFUGEES	451	

H. ALLIED HEALTH PROFESSIONALS

1. OCCUPATIONAL THERAPY SERVICES

Mrs. Lynn reports:

1.1 Occupational Therapy at the Child Development Centre has continued to provide assessment, review and treatment programmes for children showing developmental delays related to motor and perceptual skills.

There are currently 50 children on the waiting list and an average of 22 children on "ongoing" therapy. The therapist in the job sharing position is seconded to the Midland Centre one day per week. Currently there are 6 children on the waiting list, with 5 being seen on an individual basis.

Promotion of the importance of early intervention has lead to an increasing number of referrals from the Day Care Team and others involved with early childhood services. Priority selection on the waiting list will favour the younger children.

The job sharing therapist related to P.I.M.S. has become more specialised. Requests for visits to groups in the metropolitan area are carefully scrutinised and bookings are subsequently made according to localities and dates to avoid wastage of time and petrol. An "Individual Play Programme" has been established to provide awareness and support to specific parents. Input will be monitored by the therapist with referrals coming from the multidisciplinary team.

The 2 full-time therapists based at Willetton and Koondoola Special Schools, manage approximately 40 pupils each on an individual or group basis. They also handle an "outpatient" case load and are involved with out of school activity groups and camps.

All occupational therapists based at the Child Development Centre and the Special Schools meet on a monthly basis with the Principal Occupational Therapist. Problem solving, literature reviews and revision of treatment and assessment techniques form the agenda format.

2. AUDIOLOGY - RHEOLA STREET FACILITY

Miss Sharon Weeks reports:

The first half of 1984 provided to be very busy in the area of Audiology. In addition to the regular duties of staff education, diagnostic testing, ear health team, and equipment monitoring, projects on evoked response audiometry and rehabilitative materials were embarked upon.

Clinically, 214 evaluations were completed at the Rheola Street facility -

New referrals comprised	-	137 visits
Reviews	-	77

The main referral sources were:

Child Health	-	56
Child Development Centre	-	56
School Health	-	3
Speech Pathology	-	15
Others	-	7

Two children were referred to the National Acoustics' Laboratory for hearing aids.

The F.M. Amplification Program begun in 1982 was continued through the Ear Health Team. Schools visited to re-establish the project were Jigalong and Halls Creek. New programs were established in Derby, Holy Rosary School and in Roebourne. An article about this project was published in the Journal of the Audiological Society of Australia in May. Further expansion was planned and continuing evaluations of the success of the program is recommended.

Four country trips for a total of 18 days were made in the first half of 1984. Ear health, the F.M. projects, and E.N.T. support were the purposes of the visit.

In April, negotiations with the Physiology Department of the University of W.A. were begun regarding Evoked Response Audiometry. The reason for this was the continued awareness that children with severe hearing loss were still being identified well after their first birthday, even though many had some known high risk feature. A review of world literature suggested that E.R.A. might be used to screen the very young at-risk infant and avoid unnecessary delay in education input. A trial project was established in May to investigate the possibility of testing infants under the age of 3 months, using E.R.A. The infants are tested at the Rheola Street facility using equipment on loan from the University of W.A. Early results suggest that such testing is possible on infants in a state of natural sleep. Further investigation is continuing to collect normative data and to determine the at-risk factors to be considered.

As the equipment currently being used will have to be returned to the University of W.A., if this is a viable project, replacement equipment will have to be obtained.

After identification of a hearing loss, rehabilitation and education are of great importance to the child and family. Parents, teachers and others in the community all become involved in the efforts to minimize the hearing loss on the child. Teaching materials used to demonstrate and explain goals and methods to the family are often not appropriate for the child's background, such as the Aboriginal child from a remote community. Recognizing this, consultation was begun with the staff at the Speech and Hearing Centre to develop an auditory training handbook for the use by non-trained personnel using readily available materials. It is hoped that such a collection of information will have more meaning to the family and those working with all hearing impaired children.

The increasing clinic load and new projects under investigation emphasize the vitality and growth which is not only possible but necessary in the field of Audiology. The new State Health Department has the responsibility to continue to provide quality audiological services to the country and metropolitan areas of Western Australia.

This should be done through continuation of current programmes of screening, education, diagnostic identification and rehabilitation. Additional staff are necessary, however, to maintain the quality of service and to continue growth into new areas which improve the total service picture.

3. NUTRITION AND DIETETIC SERVICES

Miss J. Morris reports:

Nutrition is an essential component of preventive health programmes. Community, Child and School Health staff have ready access to the senior dietitian/nutritionist to assist them identify nutrition problem areas and priorities, provide them with up-to-date practical nutrition information and advise and assist them in planning appropriate nutrition related programmes.

Lecturing commitments to child health trainees, Ngal-a mothercraft nurses, W.A.S.N. nurses, W.A.I.T. nurses enrolled in the child health option continued in 1984 as well as the regular input to staff orientation programmes and health worker workshops in close liaison with Staff Development Branch.

The Community and Child Health Services publication "Infant Feeding Guide" was revised and re-organised to provide more advice and advocacy for breast feeding. Information contained in the W.H.O. code for the marketing of breast milk substitutes pertinent to the child health staff was also included in the feeding guide for easy reference.

Other resource material produced to meet general staff needs and for educational purposes included a pamphlet in Vietnamese about the introduction of solids to infants and the filming of the Mowanjum Aboriginal Community near Derby to enable a video about diet and diabetes mellitus to be made. This should be of tremendous value to Health Department staff working with Aboriginal communities.

Requests for nutrition and dietetic services continued to increase. These came from a wide variety of sources within the Health Department of Western Australia, from other government agencies and the general public.

Nutrition and Dietetic Services in Community Health Centres.

The table below shows the numbers of clients counselled by dietitians employed through Community Health Programme during the first six months of 1984.

Location	Employment Time	New Clients	Clients For Review	Clients Seen in Group Sessions
Geraldton	Full time	116	367	294
Mandurah	12 sessions/month	115	215	115
Busselton	3 sessions/month	15	38	60
Margaret River	1 session/month	7	30	24
Augusta	1 session/month	2	6	10

The decreasing numbers of clients seen for individual counselling reflect the increased time allocation by the dietitians to community education activities. In Geraldton the dietitian was involved, as a member of the health promotion team, with the National Heart Week "Down with Blood Pressure", and answered nutritional queries from the public during "Quit" Week, as part of the Health Department's anti smoking campaign.

The dietitians' role as nutrition resource person has been utilised by various community groups and educational institutions in all areas, and regular diabetic clinics and antenatal education classes have been conducted at many of the smaller country centres in response to requests for dietetic services. These clinics are often organised as a group meeting in an attempt to satisfy the demand in the limited time available.

In June, 1984 the dietary services provided was increased by the appointment of a full-time dietitian to service the south east metropolitan area. It is anticipated some time shall be spent at several of the closer country centres. A temporary base at Mount Hawthorn Community Health Centre is being used until the Armadale Community Health Centre is completed.

This appointment will assist in meeting the increasing demand from Health Department staff for nutrition components in health promotion activities, the increased demand from the general public for food and nutrition advice and the demand from other government agencies for assistance in nutrition and dietary matters.

SIX MONTHLY PROGRESS REPORT

1ST JANUARY - JUNE 30, 1984

PROJECT 77W50 - State wide chiropody service, country areas.

LOCATIONS - Perth, Busselton, Geraldton, Kwinana, Lockridge and Mandurah.

CONTACT - Mr. A. Boreham, Assistant Administrative Officer

STAFF - Full-time
Sessional

STATISTICS

	Male	Female	Total Patients	Total Treatments	New Cases	Did/not Report	Dis-charge
Perth	194	502	696	700	46	27	142
Busselton	279	520	799	937	43	125	29
Geraldton	266	804	1070	1107	51	90	28
Kwinana			Sick Leave				
Mandurah	468	1125	1593	1609	82	90	11

PERTH - Lectures 7, AAPSM Seminar, Kellogg Awards, Foot Health Week, Job Interviews (Geraldton & Lockridge), CDC referrals.

BUSSELTON - AAPSM Seminar.

GERALDTON - Hospital/Health Centre liaison, Health Promotion Team, BP week Dr. Hall, PUD specialist etc. supervisors visit, DSS Rehab Service Seminar.

MANDURAH - Lecture 1, improved facilities, waiting list 12 weeks.

SUMMARY

The six months to June 1984 saw the approval for two additional positions for the chiropody service. An extra staff member was allocated to the Geraldton area and the sessional position at Lockridge was converted to a full-time position.

Four staff were able to attend an important three day seminar at the Q.E. II, with Dr. R. Boydan of California. A number of significant areas were covered and will prove useful in treatment programmes. Foot health week was again supported by the Public Health Department, with staff and audio visual material at the Health Yourself Store in National Mutual Arcade.

The Geraldton chiropodist has involved herself in many different projects, all in relation to health promotion. M. James is to be congratulated on her efforts.

Appendix IV

COMMUNITY HEALTH PROGRAMME

SENIOR STAFF

Acting Deputy Commissioner of Public Health : Dr. C.F. Quadros
Principal Physiotherapist
: Mrs. L.C. Diamond
Social Work Supervisor
: Mr. F.C. Parker
Senior Chiropodist
: Mr. L.C. Foley
Asst. Administrative Officer
: Mr. A.R. Boreham

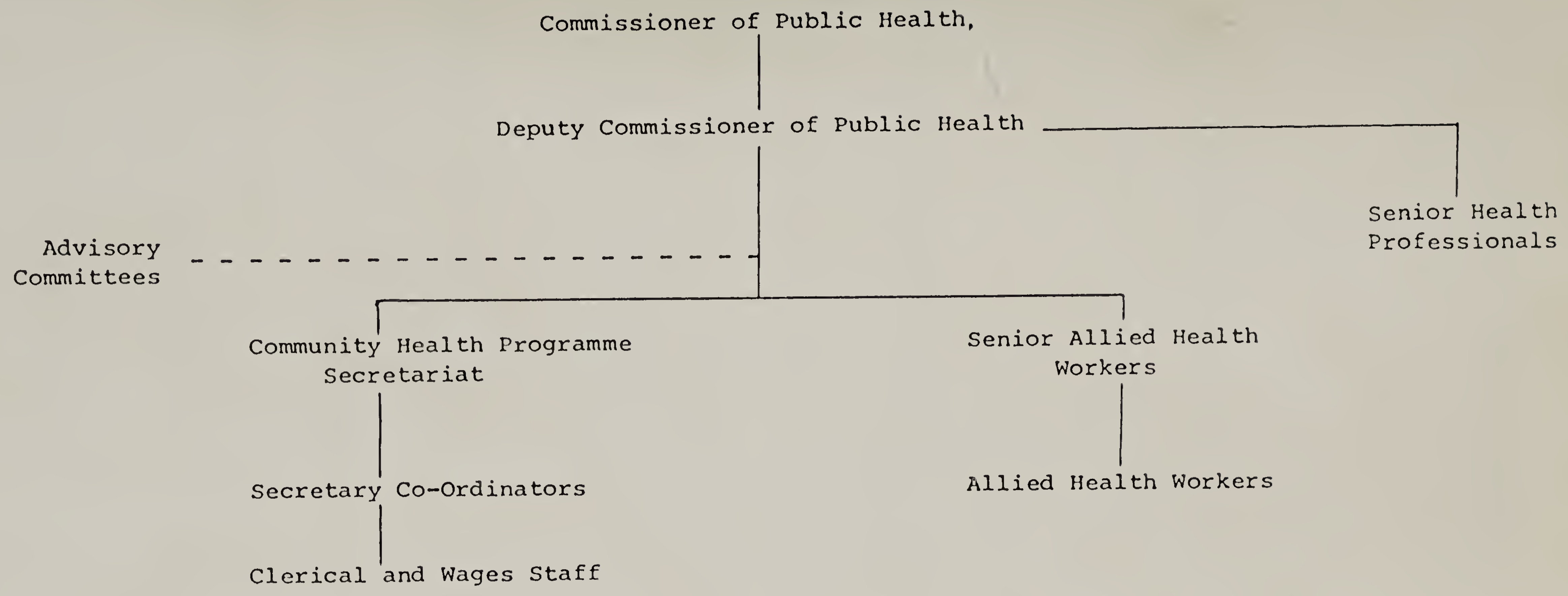
C.F. Quadros
M.B., B.Ch., B.A.O., D.P.H.
A/Deputy Commissioner of Public Health

Mrs. C. Diamond
Dip.Phys.
Principal Physiotherapist

F.C. Parker
B.Ap.Sc., Dip.Soc.Stud.
Social Work Supervisor

L.C. Foley
Dip.Ch.
Senior Chiropodist

COMMUNITY HEALTH PROGRAMME -ORGANIZATION CHART


Commissioner of Public Health,
Deputy Commissioner of Public Health
Senior Health Professionals
Advisory Committees
Community Health Programme Secretariat
Senior Allied Health Workers
Secretary Co-Ordinators
Allied Health Workers
Clerical and Wages Staff

COMMUNITY HEALTH PROGRAMME

FINANCE

The most significant influences on activities during this period were the final Medicare Agreement allocation of $642,000 and the Womens Emergency Services Programme allocation of $466,000 for 1983/84. These allocations were greater than had been anticipated and consequently led to a re-organisation of programmes.

NEW INITIATIVES

(a) Under the Medicare Agreement.

In line with established practice, Mental Health Services were provided with a share of the $642,000 allocated to Western Australia, which amounted to $150,000.

(b) The final determination of projects that were funded under the first grant period for the Public Health Department are as follows:

1. The new Community Health and Development Centres proposed for Withers (Bunbury) and Armadale are currently in the planning stages. It is anticipated that the Withers project will commence construction towards the end of the 1984/85 financial year depending on the acquisition of suitable land. A new purpose built centre will be constructed on the Armadale hospital site, hopefully completed before 30 June 1985.

2. Mobile Day Service - The Mobile Day Services team has been appointed to service the northern metropolitan corridor and will become fully operational by September 1984. This project has been developed to establish and promote the provision of Day Services (Care) for the aged and/or disabled people living in the community. The centres will be developed in areas of need and provide support to existing voluntary services.

3. Kwinana Day Service - Additions to the Kwinana Community Health and Development Centre to provide a Day Services facility have been completed. The appointment of a nurse co-ordinator and a driver/attendant have been made to compliment the service offered for aged and disabled persons in Kwinana and surrounding areas.

4. Central Resources Pool - This project is the expansion of existing resource pool services by the provision of additional staff. Limited resources has restricted the deployment of allied health professional services to areas of high need, such as consultant Physiotherapy (women's specialist) and Dietetics, Social Work, Diabetic Nursing (metro area) and Chiropody (Geraldton and Lockridge). All new staff appointments have now been finalised.

5. Encounter Records - Provision for the development of an improved records system to monitor a broader range of client contacts by health field staff. This new system will enhance the collection of morbidity data (statewide).

6. Pinjarra Satellite - The Pinjarra annexe of the Mandurah Community Health and Development Centre has been completed and was opened to the public on the 28th May 1984. In addition to the outreach services provided by the Mandurah Centre, a social worker has been appointed to the Pinjarra office through the Community Employment Programme for an initial period of twelve months.

7. Computerized Immunisation Records - This project involves the development of a computerised central register to enable a statewide co-ordination of immunisation records thereby improving the delivery of immunisation programmes. Orders for the purchase of computer equipment and software have been placed.

8. Community Fitness Programme - Five new physiotherapy positions have been filled to provide for the expansion of the existing fitness programme in the metropolitan area, which due to limited resources has only been offered to the elderly. Expansion will enable the introduction of the fitness programme to people 40 years of age and over, postnatal classes, occupational health, back care, sporting injuries, coronary care, swimming for the arthritic and disabled, as well as provide an advisory service and resource to many special groups in the community.

WOMEN'S EMERGENCY SERVICES PROGRAMME (WESP) COMMONWEALTH

During the 1983-84 financial year the Commonwealth re-entered the Women's Refuge Programme with an allocation to this State of $466,000.

After lengthy negotiations, a proposal put forward from this State, met with the Commonwealth's approval to expend the funds in three broad areas, in essence and in keeping with the attached guidelines.

45% salaries
50% 'one-off' special needs
5% multicultural purposes

Actual 1983-84 allocations -

Salaries, top-up refuge workers State salary subsidy of $9,000 p.a. to $15,000 with retrospectivity to 1/1/84	$206,800
Multicultural purposes	23,300
Special 'one-off' needs	235,900
	$466,000

PHYSIOTHERAPY REPORT

In January of this year, approval was given for the appointment of physiotherapists to work in the areas of occupational health, ethnic groups, cardiac programmes and the disabled. The results have been most rewarding. In occupational health, we are now conducting preventative back care programmes in hospitals, in business and in high schools. By December back care classes will have been conducted in all metropolitan high schools for year 10, 3 x 2 hour sessions. At the request of teachers, a programme will be devised for primary school children to assess whether this is a more appropriate level to educate.

Articles on back care and repetitive strain injuries written by Public Health physiotherapists are being published each month in the Chamber of Commerce publications. Following these publications, we have been asked to conduct programmes in several large businesses, in typing offices and in industry.

Fitness programmes have commenced for Greek, Italian, Macedonian and Chinese women. Requests have been received for ante-natal instruction in these areas. We will begin these classes in October.

Our programmes for high risk cardiac clients have been assessed by the cardiologists who have approved the content and this will commence shortly in local districts through referral from G.P's.

At the request of gerontologists and neurologists special groups have been established for disabled people to maintain them at the level of hospital discharge. Assessment so far has indicated that the potential for improved performance exists. We are hopeful that clients will be able to cope with the physical demands on them in maintaining independence.

The fitness programmes for the elderly continue to develop. There are now several specialised groups i.e. psychiatric patients, stroke groups etc.

A research programme will be conducted this year with the assistance of Dr. Lance Twomey (W.A.I.T.) an epidemiologist and a physiotherapist.

There have been very few changes in the Community Health Centres. New programmes require more staff, so we are forced to limit participation to what we can provide with available means.

The participation and contribution of paediatric services are dynamic. I attach the reports as submitted for your information.

The contribution made by physiotherapists in Public Health to the community has produced revolutionary changes in physiotherapy itself. It has been a joy to be a part of this development.

PHYSIOTHERAPY MOTOR SKILLS PROGRAMME

Motor co-ordination programmes are now running regularly in 24 country and 4 metropolitan centres. The programmes involve assessment of the children, planning and implementation of the classes, re-assessment and evaluation, as well as regular ongoing contact with other professionals involved with the children - guidance officers, school health nurses, parents, teachers, school medical officers and child health nurses. The classes vary from centre to centre, and include such wide ranging activities as swimming classes and a trampoline group run by the Mandurah physiotherapists. The assessment and re-assessment results from all the classes are collected centrally, and the data is then available for future documentation.

The regular contact with local schools has resulted in several therapists being approached by Education Department staff to run similar programmes for pre-school and special class children. These are now underway in several country centres.

The poorly co-ordinated intellectually handicapped child will also benefit greatly from motor co-ordination programmes, which can be easily adapted to suit the needs of the special school population. With this is mind, many of the physiotherapists have become involved with the local special school, running co-ordination classes, as well as seeing the children with specific needs, eg. the multi-handicapped child, on a regular individual basis.

It has now become evident that a programme which began in 1982, looking at a specific target population - the clumsy child - has widened its focus and is developing into a broad physiotherapy paediatric service for the school-age child.

CHILD DEVELOPMENT CENTRE

Staff

1 full-time Level II Physiotherapist.

1 Sessional Physiotherapist (4 sessions per week).

With some use of the facilities by the physiotherapist located at Curtin House, in charge of the programme for poorly co-ordinated children.

Statistical Breakdown

A total of 111 new children were referred to the physiotherapists for assessment and treatment between January and June.

64 review cases were seen and 219 children were treated in ongoing programmes.

A total of 99 children were seen outside the centre, the majority being in the outer metropolitan and country centres.

Group runs numbered 27 in this 6 month period and a total of 22 talks and lectures were given.

During this period 2 newspaper interviews on the techniques of baby massage and handling were given, and an invitation was accepted to do a radio interview on 6UVS FM. This has resulted in greatly increased interest and has been responsible for the overall statistical increase, particularly in the areas of groups and lectures. Many parents with difficult babies have subsequently been helped.

Child Development Centre

The physiotherapists continue to provide a practical and consultant back-up service for child health nurses. A service is also provided for low birthweight babies with neurological problems identified by a current research programme at King Edward Memorial Hospital. This research is run jointly by W.A.I.T. physiotherapists and a paediatrician and very early identification of at risk babies enables early and immediate physiotherapy intervention to be offered at the Child Development Centre.

Supervision continues at Willetton and Koondoola Special Schools, with the physiotherapists who work there, and now it encompasses supervision of the physiotherapy aides. The latter are providing a good standard of assistance for the physiotherapy programmes and are enabling more time to be given to the children with more complex problems.

WILLETTON SPECIAL SCHOOL

There are currently 82 children attending Willetton Special School, and 66 of these have regular physiotherapy provided by 1 full-time and 2 part-time therapists. The type of children now coming to school is changing. These children are tending to be the more multiply handicapped, and are requiring more physiotherapy. Therefore, although predominantly therapy is carried out on an individual basis, there are more group sessions evolving to combat the lack of therapy time.

These groups include:-

> balance/co-ordination; Halliwick swimming; bilateral skills group and movement and recreation carried out in conjunction with the physical education teacher.

The two new physiotherapy aides provided by the Commonwealth Employment Programme have started work and have been found to be very useful and enthusiastic. They are helping in the data based gross motor programmes of the multiply handicapped, also standing children in class, giving extra walks, helping in group sessions and in swimming.

KOONDOOLA SPECIAL SCHOOL

On May 28th, Koondoola Special School acquired the services of two physiotherapy aides through the Community Employment Programme (C.E.P.). After the initial period of orientation, this has meant the physiotherapists have been able to spend more time on individual treatments and initiating new groups. New groups include:-

1. Fitness (a second to begin in early August);
2. Ball skills;
3. Balance.

After much supervision and instruction the aides now perform regular stretches. Previously stretches were unable to be carried out as often as one would desire due to time restrictions. There is evidence that this is improving R.O.M. in many cases. They also attend to the time consuming task of putting children in and out of standing frames. As one of the aides is a competent swimmer we are able to arrange several individual sessions in the pool where general exercises are performed.

The statistics for the financial year ending June 1984 are as below. As can be seen the June figures have increased considerably with the addition of the aides. May figures are low, but two weeks of this time are school holidays, when new out-patients are assessed and activity days are conducted. The latter figures are not included in the statistics.

July 1983	512
August	421
September	440
October	608
November	694
December	134

February 1984	361	(one physiotherapist)
March	669	(one physiotherapist and one part-time)
April	610	(two physiotherapists)
May	387	
June	1,024	

Out-patient figures for May and June are as below:-

May	48
June	86

Videoing

An annual video session of children was undertaken in early July. This provides valuable information on the children's progress to keep on record.

Weekend In-Service Course - 22nd - 23rd June

This was attended by all staff and was most valuable and instrumental in forming a school policy. All staff made contributions.

Appendix V

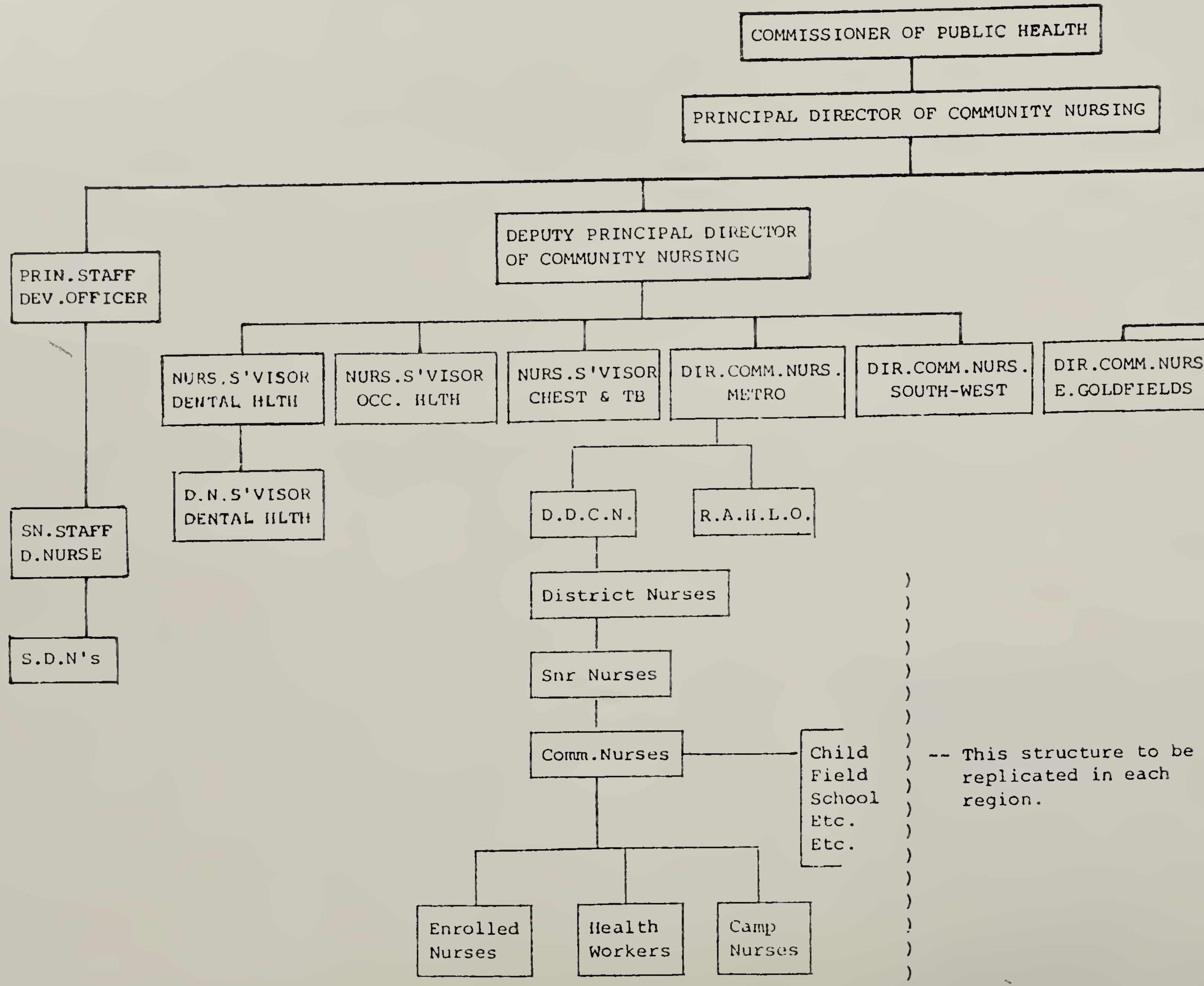
COMMUNITY NURSING SERVICE

Miss P.M. Reid
F.C.N.A., Dip.N.(N.Z.)
Principal Director of Community Nursing

SENIOR STAFF

Principal Director of Community Nursing : Miss P.M. Reid
Deputy Principal Director of Community Nursing : Mrs. P. Baskin

COMMUNITY NURSING SERVICE - ORGANIZATION CHART



N.B. - To avoid confusion in this diagram only the nursing lines of responsibility have been shown, not the Branch or Regional lines.

COMMUNITY NURSING SERVICE

The report of Community Nursing Services activities in the period first of January to thirtieth of June 1984.

The new year saw the realisation of two significant milestones for the Community Nursing Services:

(i) The implementation of the final phase of reorganisation of community nursing administration from a functional basis to a decentralised geographical basis;

(ii) The appointment of Regional Aboriginal Health Liaison Officers in all the health regions of the State.

ADMINISTRATION AND ORGANISATION

The organisational changes took eight years. The concept is simple but associated industrial, historical, human and practical issues proved to be complex. The structure covers all nurses and health workers employed by the Public Health Department. There is a Director and Deputy Director of Community Nursing in each of the six Public Health Regions around the State i.e. Kimberley, Pilbara, Central, Eastern Goldfields, South West and Metropolitan. Incorporation of some metropolitan specialist streams within the regional model will be considered when teething problems have been resolved.

Refer to:
(i) Organisation chart
(ii) Tabulation of Community Nursing positions, Appendix A.

The new organisation will shorten the chain of command and decentralise decision making and co-ordinating thus facilitating interaction between policy makers and service providers. By promoting the dissemination of special knowledge and skills throughout the State and decentralising management and evaluation a more appropriate career path can be established. The district nurse supervisor will be charged with responsibility to develop and maintain effective working relationships with local government authorities.

In the main these changes are being realised by way of specific purpose working parties and inservice education.

The nursing executive has met quarterly to plan and steer the service towards the reorganisation; this year it has been able to work towards ensuring the meeting of Community Nursing Service's responsibilities viz:

(i) Maintaining and developing the Community Nursing Service;

(ii) Planning, evaluating and setting standards of nursing;

(iii) Identifying health trends relevant to nursing;

(iv) Contributing to research into nursing and health.

Working parties have or are addressing the following:

1. Quality assurance and standards of practice;
2. Documentation, handbooks and records;
3. Implementation of changes in nursing administration in the metropolitan and south west areas.
4. Guidelines for the development of community based day centres. This work is complete and the working party disbanded.
5. Policy and guidelines for fitness and health promotion for older adults.

The position of Assistant Principal Director of Community Nursing was approved and Mrs. Gay Bernard appointed.

The Regional Aboriginal Health Liaison Officers (RAHLO's) contribute to their respective regional administration as a member of the regional team. The inaugural meeting of all RAHLO's was held in February. This meeting established an additional system for input to administration and an exchange of information with the most senior staff of the Department through the office of the Principal Director of Community Nursing.

The Environmental Health Assistants programme was well accepted in many rural Aboriginal communities. In the Eastern Goldfields between 16 and 18 people worked under the programme and changes in refuse disposal and care of ablution facilities have been achieved. It is hoped that communities will seek to employ these assistants as the funding of this programme has ended.

SERVICE DELIVERY

Isolated Aboriginal Communities

The homelands movement continues in Aboriginal communities. The two most recent ones are the Punmun Community of around 200 people who have moved into the desert approximately 250 kms east of Nullagine and around 75 people of the Nganganawilli Community who have moved to Mungilee Clay Pan approximately 480 kms east of Wiluna. The Cundeelee people are considering dividing into three groups. One group at Cundeelee, one going to Coonana 70 kms south of Cundeelee and one going to Spinifex (near Loongana) approximately 500 kms east of Cundeelee. Five similar moves occurred in the Kimberley at the end of last year.

Camps such as these, without proper roads or a reliable/potable water supply do not enhance the health opportunities for women and children. Delivering service to such places presents some occupational health hazards for the nurses involved. The heavy driving in itself makes considerable physical demands on staff and requires, among other things, a sound skeletal system. The harsh realities and administrative complexities of providing nursing services to such groups are rarely understood. Such situations underline the necessity for nurse involvement in service policy making and planning.

Adults and Senior Citizens

Community day services have been extended by the approval in February 1984 of funding of two mobile service teams. Two day centre nurses commenced duties in April and May and undertook specific preparation for working in day centres. Furniture and equipment for the teams was selected and ordered. The purchase of two buses with hydraulic lifts and special adaptations for the disabled was finalised prior to June 30, 1984. The two bus driver/attendants are to commence in July/August 1984.

The day centre room attached to the Kwinana Health Centre is expected to be completed by August 1984 and will be one of the venues used by the mobile teams. Preliminary discussions to locate centres supported by the mobiles were held with the City of Stirling and the City of Nedlands. Other centres which commenced in 1984 operate weekly in Midland, Subiaco and Narrogin.

The guidelines for the development of community based day centres should be available in August 1984. Client record and nursing assessment forms are being prepared and will be tested by the mobile day services teams. Day centre workers' liaison meetings continued 3 monthly at Curtin House and are convened by Mrs. Gaye Johns, the nurse who co-ordinates community day services.

The increased community interest in "over 50's" fitness has resulted in the holiday membership for "southerners" wanting to join similar groups in the Murchison and Gascoyne areas.

In the Eastern Goldfields the exercise programmes for the aged have met with enthusiasm. A study of the Kalgoorlie Nursing Home group is being conducted to describe the benefits of these programmes to their participants.

Diabetics

Funds were obtained and a nurse, Miss J. Ridgwell, was seconded to the Diabetic Association from 21 May 1984. The role is that of nursing resource to the association and support for individuals with diabetes and their families.

Smoking and Health Project

Mrs. Ann Del Fante was appointed to this new role on 17 February, 1984. This nurse works from the Health Yourself shop, providing health information and counselling on smoking and other lifestyle risk factors.

Mothers and Children

Housing development in the north metropolitan area continues to place heavy demands on child health nurses' workloads. Relocation of boundaries and centres has been undertaken in conjunction with local staff.

Staff from the Expectant Parent Unit, Play Information Mobile Service (PIMS) and the Health Education Unit have combined with the Childbirth and Parenthood Education Association to plan and present a six session programme at the request of some mothers' groups in the northern suburbs. This pilot series will be evaluated and it is planned to present it in 'package' form for use by community nurses throughout the State.

A further initiative in regard to services to the Indo-Chinese community is the development of culturally acceptable ante-natal classes.

Community nurses throughout the State are increasingly involved in conducting ante-natal classes and providing information to expectant parents. The number of post-natal classes has increased and more are needed.

In Carnarvon, health workers have supplemented regular ante-natal programmes with small group sessions for Aboriginal mothers.

Nurses with child health qualifications have been in particularly short supply in the Eastern Goldfields and Pilbara over recent months. An energetic recruitment drive was initiated by the nursing administration with enthusiastic support from Miss Young, the Director of Nursing at Ngal-a and with an avenue for input from the communities in need. This approach is beginning to reverse the situation.

Within the metropolitan area family mobility, associated with socio-economic factors, continues to generate additional work. School children are presenting with an increasing number of social problems and the nursing staff are frequently seen as a stable source of support and information for students. High school nurses have been identifying the issues further so that their roles and workloads can be effectively reviewed.

In high schools where a large number of Indo-Chinese attend, the students require additional assistance in adjusting to cultural differences.

The first group of refugees from Chile arrived in March and were accommodated at Graylands Hostel. An ethnic health worker is not available for this group however the skills of a Spanish speaking field nurse have been very useful.

RESEARCH

The special skills of Miss Joan Bedford, the research nurse, have been in heavy demand during the last year. In addition to the essential data collection, evaluation and research projects relating to the midwives system, Miss Bedford has assisted in nursing studies and in the review, evaluation and refinement of the developments within the Community Nursing services. These activities were in turn overwhelmed by the priority that had to be given to the Public health Department's corporate planning process and assisting in the work of developing strategic and tactical plans for Branches and Sections. The net result of this was that Miss Bedford was endeavouring to manage a workload that should have been three separate jobs. This problem is in the process of being resolved.

Various surveys and research programmes have made considerable demands on nurse/health worker time and resources. Some of these studies were introduced to staff after consultation with nursing administration, others were implemented without consultation and consequently have distorted workloads and had an undesirable effect on service delivery.

Studies in which nursing staff are involved included -

(i) Thiamine Survey of Infants (6 weeks to 12 months of age);

(ii) Collaborative W.A. and Tasmanian Survey of feeding practices and growth in infants;

(iii) Survey of school children known to have diabetes, in conjunction with the Department of Endocrinology and Diabetes at Q.E. II Medical Centre;

(iv) Near Vision Survey of Year 1 school children;

(v) Untilisation of Health Services by teenage mothers (Youth Health Services);

(vi) Visual Accuity - for Brian English;

(vii) Hearing Response - for Sharon Weekes;

(viii) Post-natal Health of Mothers - for Diane Burr;

(ix) The Benefits of Exercise Programmes for the Aged - Eastern Goldfields, Kalgoorlie.

(x) The Education Needs of Community Nurses - Anne McMurray.

and in the Kimberley;

(xi) Metabolism and Diabetes - for Kerrin O'Dea;

(xii) Growth and Development - for Michael Gracey;

(xiii) Lactose Intolerance - for J. Brand;

(xiv) Carbonic Anhydrose - for J. Kirk;

(xv) Zinc Deficiency - for Professor D. Cheek;

(xvi) Immunology - for Mr. Turner

Guidelines are being prepared to clarify the appropriate steps researchers should take if they want community nurses or health workers to assist in their studies.

STAFF

The Eastern Goldfields Health Region has continued to develop co-operative ventures across the health services; notable were a successful Trauma Day on 7 April in Kalgoorlie attended by 100 nurses and medical practitioners and the Warburton Workshop on 12-14 March attended by 22 health service workers from Western Australia, Northern Territory and South Australia.

Three members of the community nursing staff have been granted overseas scholarships. They are -

- Miss Anne Yarran, enrolled nurse : funded by the Federal Department of Aboriginal Affairs to undertake an observation programme on parenting, education for parenthood, parental stress and mother/child relationships in several centres in the United States of America, effective from July 27 to November 30, 1984;
- Mrs. Gay Bernard : awarded a W.K. Kellogg Foundation Scholarship to undertake a Masters Degree in Community Health Nursing Administration within the Master of Science programme at the University of Colorado commencing in August 1984;
- Mrs. Ann Del Fante : awarded a short-term W.K. Kellogg Foundation Scholarship to undertake observation and practice in holistic health promotion at the University of California, San Francisco, effective from 27 August to 31 December 1984.

Over the past six months there has been increasing evidence that the underlying intentions for the community nursing organisation are being realised. This augers well for the future quality of service. The human energy and commitment necessary to realise these changes is not underestimated. Special thanks go to those nurses who made the difficult but necessary personal and professional adjustments the situation required.

APPENDIX A

COMMUNITY NURSING POSITIONS AT 30/6/84

REGIONAL LOCATION	CATEGORIES OF STAFF IN THE NURSING ESTABLISHMENT			
	R.N's(1)	E.N's(2)	H.W's(3)	R.A.H.L.O's(4)
Kimberley	54	2	38	2
Pilbara	36	2	15	1 (E.N)
Eastern Goldfields	39	0	17	1 (E.N)
Central	26	1	17	1
South-West	84	1	13	2
Metropolitan				
- Community & Child Health Services	275	7	18	1
- Occupational Health	3			
- Chest & Tuberculosis Services	14			
- V.D. Control Branch	6			
- Staff Development Unit	10			
- Research (Maternal & Child Health)	1			
- Day Centre Services	3			
Curtin House Administration	3			

(1) All categories of registered nurses

(2) Enrolled Nurses

(3) Health Workers not working as RAHLO's ('Aboriginal' and 'Ethnic')

(4) Regional Aboriginal Health Liaison Officers (Health Worker Special)

Appendix VI

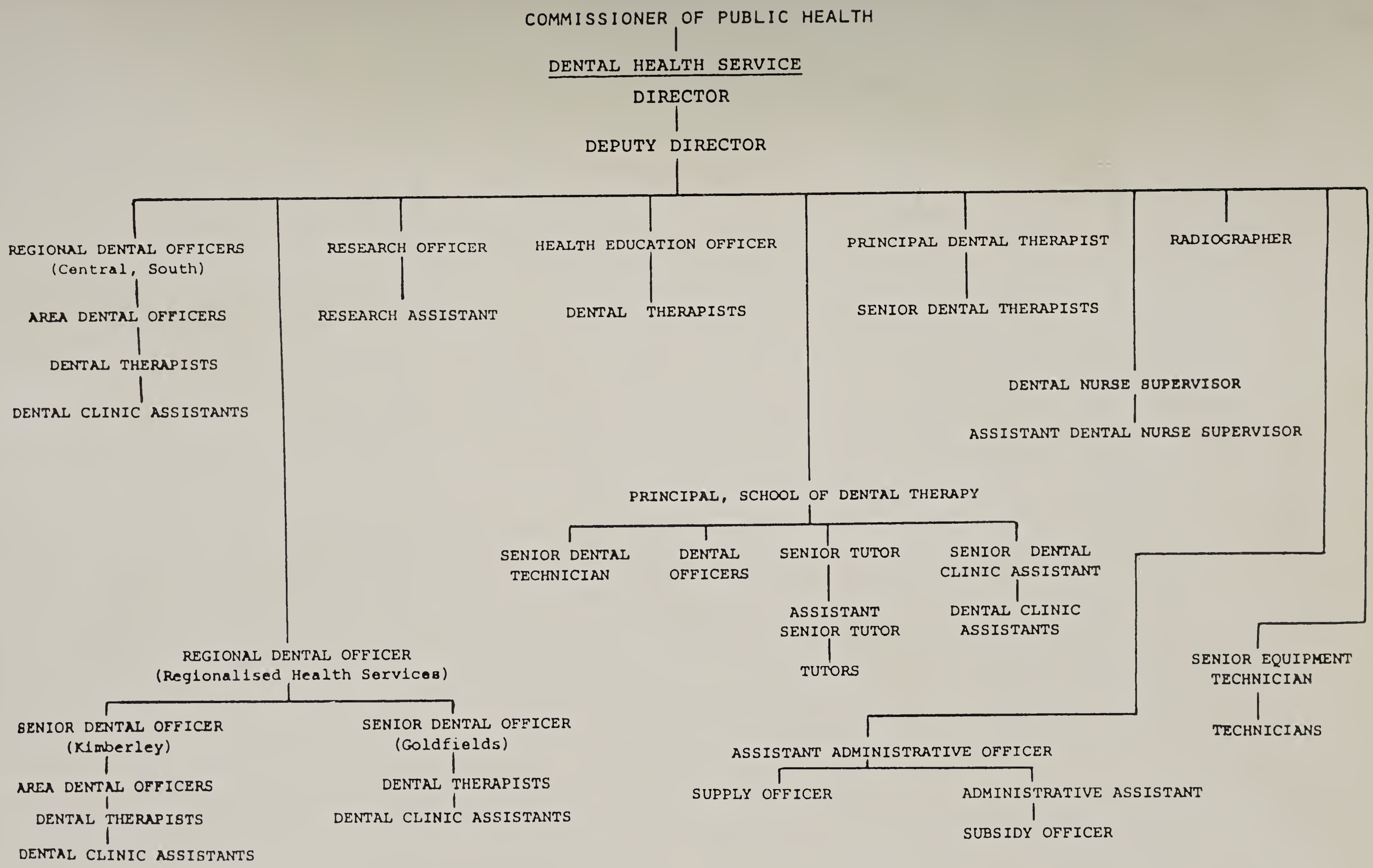
DENTAL HEALTH SERVICES

SENIOR STAFF

Director : Mr. J.L. Prichard
Deputy Director : Mr. H.G. Lamplough
Principal, School of Dental Therapy : Mr. D.C. Neesham
Assistant Administrative Officer : Mr. R.J. Hatch

Mr. J.L. Prichard,
Dip. D.S., B.D.Sc., F.I.C.D.
Director

DENTAL HEALTH SERVICES - ORGANIZATION CHART



DENTAL HEALTH SERVICES

1. INTRODUCTION

This short report covers the period 1st January - 30th June 1984, and is the last report of Dental Health Service as a Branch of the Public Health Department.

The School Dental Service, Rural and Remote Clinics, Itinerant Services and the Country Patients Dental Subsidy Scheme operated as usual over this period.

The new preventive and treatment programmes continue to be evaluated. Funds have been sought in 1984-85 estimates for the fissure sealing programme for permanent teeth.

2. ADMINISTRATIVE SERVICES

Staff

Staff numbers as at 30th June, 1984 were as follows:-

Dental Officers	48
Dental Therapists	236
Dental Clinic Assistants/ Dental Nurses	174
Clerical and General Staff	26
Wages Staff	16
Miscellaneous Officers	1
	501

3. SUBSIDISED DENTAL SCHEME

Although the scheme has basically operated as in previous years, the increasing numbers of persons seeking subsidy has created a situation where a waiting period for approval has occurred.

Acute painful emergencies do not require approval. A monthly allocation of funds controls the number of applications approved, from the waiting list.

Additional funds have been sought in the 1984-85 estimates.

Statistical data relative to the scheme is as follows:

TABLE 1

SELECTED STATISTICS FOR SUBSIDISED DENTAL SCHEME

JANUARY 1 - JUNE 30, 1984

	Children	Pensioners	Others	Total
Applications Received	197	916	1577	2690
Applications Approved	186	891	1518	2595
Cost of Services ($)	14766	114710	160095	289571
Subsidy Paid ($)	10965	101831	159101	217950
SERVICES:				
Examinations				894
Extractions				1281
Restorations				2483
Dentures				390

TABLE 2

SUMMARY OF TREATMENT PROVIDED BY THE GENERAL AND ITINERANT DENTAL SERVICES

JANUARY 1 - JUNE 30, 1984

PREVENTIVE	
Prophylaxis	673
Preventive Treatment	429
RADIOGRAPHY	
Films	482
OPERATIVE	
Amalgam Restorations	1521
Synthetic Restorations	812
Gold Restorations	1
Crowns/Bridges	17
Root Canal Restorations	91
Sedative Treatments	307
SURGICAL	
Teeth Extracted	880
Minor Surgical Procedures	65
PROSTHODONTICS	
Complete Dentures	74
Partial Dentures	55
Rebase/Reline	4
Repairs/Additions	72
ORTHODONTICS	
Removable Appliances	10
PATIENT ATTENDANCES	5738

4. SCHOOL DENTAL SERVICE

The coverage by the School Dental Service over the years 1974 - June 30, 1984 is shown in Table 3.

TABLE 3

COVERAGE BY THE SCHOOL DENTAL SERVICE

1974 - JANUARY 1 - JUNE 30, 1984

Year	Number of Dental Therapy Centres	Target Population (Primary School children)	No. of children with access to the School Dental Service	% of children with access to the School Dental Service
1974	9	152,280	9,810	6.4
1975	14	154,089	18,099	11.7
1976	39	157,359	46,466	29.5
1977	65	162,081	70,942	43.8
1978	89	165,086	98,319	59.5
1979	102	165,245	110,905	67.1
1980	127	165,317	149,422	90.4
1981	134	184,615*	173,198	93.8
1982	137	189,730*	179,854	94.8
1983	139	191,560*	182,331	95.2
1984	138	190,357**	180,439	94.8

*Primary, Pre-primary and Pre-school children
**Six month figure January 1 - June 30, 1984.

Table 4 indicates the continued successful control of dental caries in school children.

Significantly the numbers of decayed teeth in children continue to fall both for 6 year old and 12 year old children.

TABLE 4

SELECTED PARAMETERS OF THE SCHOOL DENTAL SERVICE

1978 - JANUARY 1 - JUNE 30, 1984

	1978	1979	1980	1981	1982	1983	1984
Number of examinations	90,774	136,487	182,821	226,982	229,104	242,870	58,402
Percentage of children with no caries experience in the permanent teeth at age 12	14.1	18.4	19.6	18.8	19.7	22.1	23.2
Mean number of missing permanent teeth per 100 children at age 12	16	10	7	8	5	3	3
Mean number of decayed, missing and filled permanent teeth per child at age 12	3.6	3.2	3.0	3.0	3.0	2.8	2.6
Mean number of decayed permanent teeth per child at age 12	1.1	0.7	0.6	0.6	0.6	0.5	0.4
Mean number of decayed deciduous teeth per child at age 6	1.2	1.1	0.9	0.8	0.8	0.7	0.6

5. ACKNOWLEDGEMENTS

Throughout the year this Branch enjoyed support and assistance from the Commissioner of Public Health, Dr. J.C. McNulty, as well as the continued co-operation of all branches and sections of the Public Health Department.

Particularly, the assistance of the Royal Flying Doctor Service of Australia (Eastern Goldfields Section Inc.) in transporting the staff and equipment of the Itinerant Dental Service to remote communities in the south east of the State, is greatly acknowledged.

Finally, the successful accomplishments of the Dental Health Service could not have occurred without the loyal and dedicated service of the personnel of the Branch. To these members I record my personal thanks.

Appendix VII

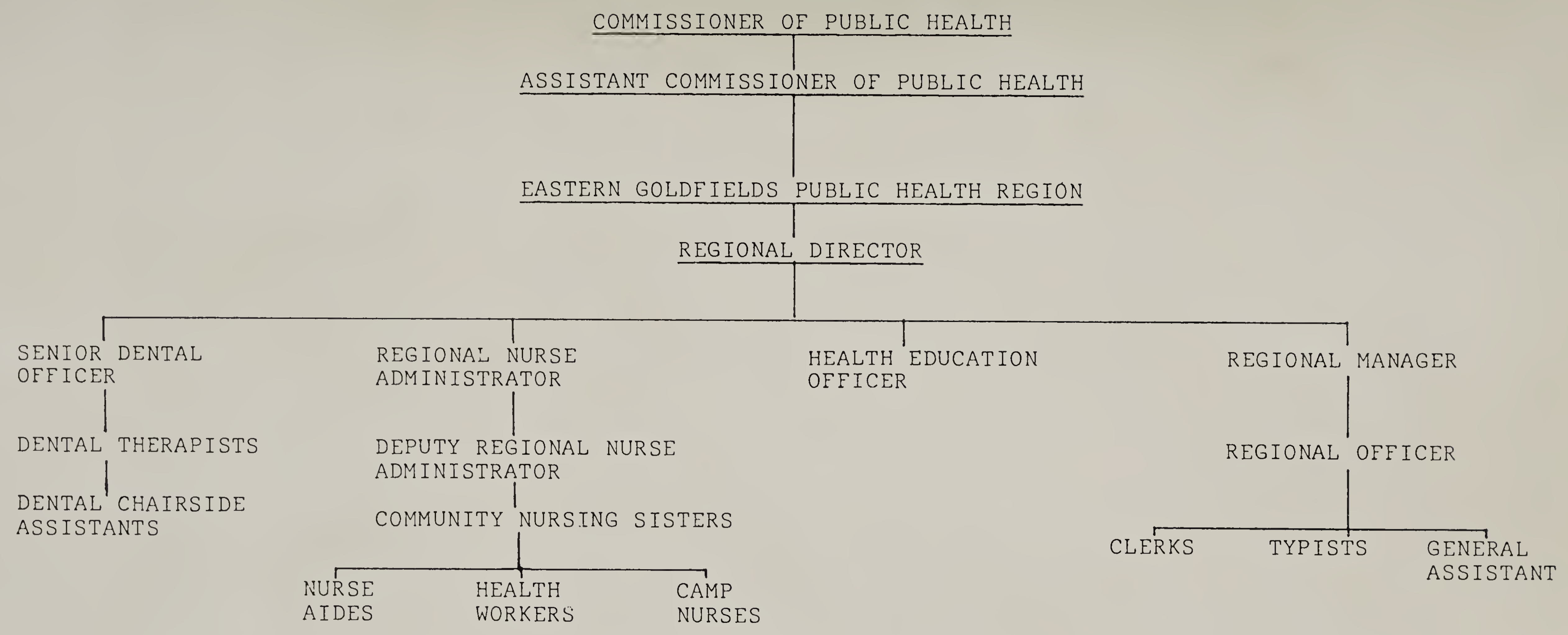
EASTERN GOLDFIELDS PUBLIC HEALTH REGION

SENIOR STAFF

Regional Director of Public Health
: Dr. D.R. Coid
Regional Manager of Health
: Mr. B.A. Clark
Director of Community Nursing
: Mrs. G.G.A. Bernard
Senior Dental Officer
: Mr. K. Lomax
Regional Health Education Officer
: Mrs. C. Tauss

D.R. Coid
M.Sc., B.Med.Sci.,B.M., B.S., M.R.C.P.
Regional Director of Public Health

EASTERN GOLDFIELDS PUBLIC HEALTH REGION - ORGANIZATION CHART


COMMISSIONER OF PUBLIC HEALTH
ASSISTANT COMMISSIONER OF PUBLIC HEALTH
EASTERN GOLDFIELDS PUBLIC HEALTH REGION
REGIONAL DIRECTOR
SENIOR DENTAL OFFICER
DENTAL THERAPISTS
DENTAL CHAIRSIDE ASSISTANTS
REGIONAL NURSE ADMINISTRATOR
DEPUTY REGIONAL NURSE ADMINISTRATOR
COMMUNITY NURSING SISTERS
NURSE AIDES
HEALTH WORKERS
CAMP NURSES
HEALTH EDUCATION OFFICER
REGIONAL MANAGER
REGIONAL OFFICER
CLERKS
TYPISTS
GENERAL ASSISTANT

EASTERN GOLDFIELDS PUBLIC HEALTH REGION

TABLE I

STAFF AS AT 30 JUNE 1984

	Approved Full-Time Positions	Number of Employees
Medical Practitioners	1	1
Dental Surgeons	1	1
Nursing Administration	3	3
Administrative/Clerical	6	6*
Public Health Field Nurses	19	18**
Chest & Tuberculosis Nurse	½	1
Child Health Nurses	5	4
School Health Nurses	5	5
Dental Therapists	8	5
Dental Nurses	6	5
Regional Aboriginal Health Liaison Officer	1	1
Health Workers	12	15
Camp Nurses	N/A	12
Sessional Medical Officer	N/A	1

*Includes 1 Public Sector Trainee
**Includes WAARF Nurse

INTRODUCTION

In the first six months of 1984 the Region liaised closely with the Department of Hospital and Allied Services. Members of the Regional Team participated in that Department's area group meetings and other similar forums where health issues of mutual interest could be addressed. Unfortunately contact with Mental Health Services staff was limited, there being no employees of this Department based in the Eastern Goldfields.

The Region implemented the Environmental Health Assistant Programme placing 20 Aboriginal people in employment in various communities throughout the Goldfields. Regrettably funding for this programme ceased on June 30 and at the time of writing the majority of these individuals were again unemployed. The programme highlighted the need for practical assistance to be available to Aboriginal communities in their efforts to promote a safe environment. This assistance could best be provided by a Departmental health surveyor based in Kalgoorlie.

During the year there was continued public concern in Kalgoorlie/Boulder over levels of sulphurous fumes in the atmosphere. The establishment of a third Departmental monitoring base for atmospheric sulphur dioxide was being planned - this unit to be situated at Boulder Primary School.

There was a continuing lack of shelter/housing in Kalgoorlie with caravan parks being fully utilised to make good the deficit. No government emergency housing was available with resultant pressures on voluntary agencies. Furthermore there was a lack of quality accommodation in the Region for low income families.

The Regional component of the Smoking and Health Project was launched on May 2, 1984 by the Mayor of Kalgoorlie. The project is being co-ordinated in the Region by the Regional Health Education Officer.

The Region's School Dental Therapy Services continue to operate smoothly despite staffing cut-backs. A lack of resources precluded the provision of dental therapy to students in at least 12 schools in the Region. The areas in which these children live were visited by a Departmental Dental Surgeon.

The Eastern Goldfields Community Health Centre was officially opened on June 27, 1984 by Mr. Ian Taylor M.L.A. This provides improved facilities for both administrative and service functions.

Accommodation for a public health field nurse, child health nurse and dental therapist is being constructed in Kambalda. Office accommodation throughout the Region has been significantly upgraded; the Norseman Office/Child Health Clinic is the only building that remains seriously sub-standard.

Most medical services to the community continued to be supplied by private medical practitioners. However it is suggested that a need currently exists for a further Community Health Medical Officer. Furthermore there is also a need for a doctor permanently based in the Region, with expert knowledge in occupational health and safety.

PREVENTIVE DENTAL SERVICES

Late in 1983 the new Silver Fluoride and Atraumatic techniques were introduced. In early 1984 it was evident that both operator and patient would benefit from these methods, stress for both was reduced, and an increase in the number of treatments per day was noted. Unfortunately 1984 commenced with the loss of a dental therapist who was not subsequently replaced. At the end of May the Area Dental Therapist commenced maternity leave and she, too, has not been replaced.

In February the Mobile Dental Therapy Unit visited Coolgardie Primary School for 5 weeks. This was staffed by dental therapists from Esperance Dental Therapy Centre. In March the Unit visited a new site at East

Kambalda for the first time. During the visit the staff from West Kambalda provided the clinical service. In April the Unit moved to yet another new site at Kalgoorlie Central Primary School and was staffed by a therapist from Boulder.

During this period the Itinerant Road Service, Aero Dental Service and Perth Dental Hospital Service visited various isolated areas in the Region. During February the Itinerant Road Service visited Salmon Gums, Grass Patch, Scadden, Condingup and Munglinup. In March the dental therapy service was provided at Ravensthorpe by Mobile 27, Dental Health Services.

The Perth Dental Hospital Itinerant Service visited Munglinup in April and Ravensthorpe in June.

In early May the Aero Dental Unit visited the Central Reserves and included visits to Warburton, Blackstone, Jamieson, Warakuna and Wingellinna. The Public Health Department Itinerant Road Service visited Leonora, Laverton and Menzies for six weeks from the beginning of May and in June the Aero Dental Service visited various outposts on the Nullarbor Plain.

COMMUNITY NURSING

1984 has been a time of innovation and change for the Regional community nurses. Nevertheless, maintenance of adequate staffing levels continue to be a problem, nurses apparently being reticent to work in the Eastern Goldfields. Child Health Nursing Services in the North-Eastern Goldfields, Kalgoorlie/Boulder and Norseman were especially impaired due to serious staff shortages. Greater incentives are required to attract quality nursing staff to the Region. Community nurses were involved in a wide variety of projects:-

1. Assistance was given in supervising Aboriginal Environmental Health Assistants, this scheme was a great success in several communities.

2. A Nursing Research Project was undertaken in association with Kalgoorlie Nursing Home. It is hoped the result will provide insight into the effects of exercise and musical activity on the health of elderly people.

3. The Community Nursing Services shared clients with the two Aboriginal Medical Services operating in the Region. Close liaison continued with these organisations.

4. Community nurses are now operating antenatal classes in nine towns in the Region - where appropriate these are run with the local medical practitioner or hospital.

5. In February nurses participated in a Central Reserves Health Workshop. Various health professionals from the Northern Territory and South Australia also attended this Departmental innovation.

HEALTH PROMOTION SERVICES

Considerable effort was directed towards the Region's Smoking and Health Project. Initiation of action groups in Esperance and Kalgoorlie/Boulder was undertaken to provide the essential community input into this programme. Various facets of the Regional Project included presentations, for schools, in the media and for many community groups. "Quit Week" was well supported by the community.

Other major projects were the arrangement of displays at the Kalgoorlie/Boulder Community Fair, organising a Youth Health Seminar in Kalgoorlie and participation in the Department's Aboriginal Health Worker Education Programme. During the six months to June 1984 there were 155 requests for health promotion information and advice; these emanated from a plethora of agencies including schools, voluntary agencies and other government departments.

ADMINISTRATION

There was insufficient allocation of monies to adequately maintain the necessary Child, School and Community Health Programme Services within the Region. Nevertheless, a far ranging renovation and repairs programme was completed. Staff housing and office facilities around the Region are now largely satisfactory. A new office has been opened in Ravensthorpe and there has been an extension to the Laverton Centre.

There were no resignations or appointments of permanent clerical staff in the first six months of 1984. There is however, an urgent need for additional permanent clerical assistance to aid in the administration of the new Regional headquarters.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the staff of the Public Health Region who have worked to implement the regionalisation of Public Health Services in the Eastern Goldfields. In particular thanks are due to Mrs. Gay Bernard, Director of Community Nursing who leaves to take up a study programme in the United States of America.

Appendix VIII

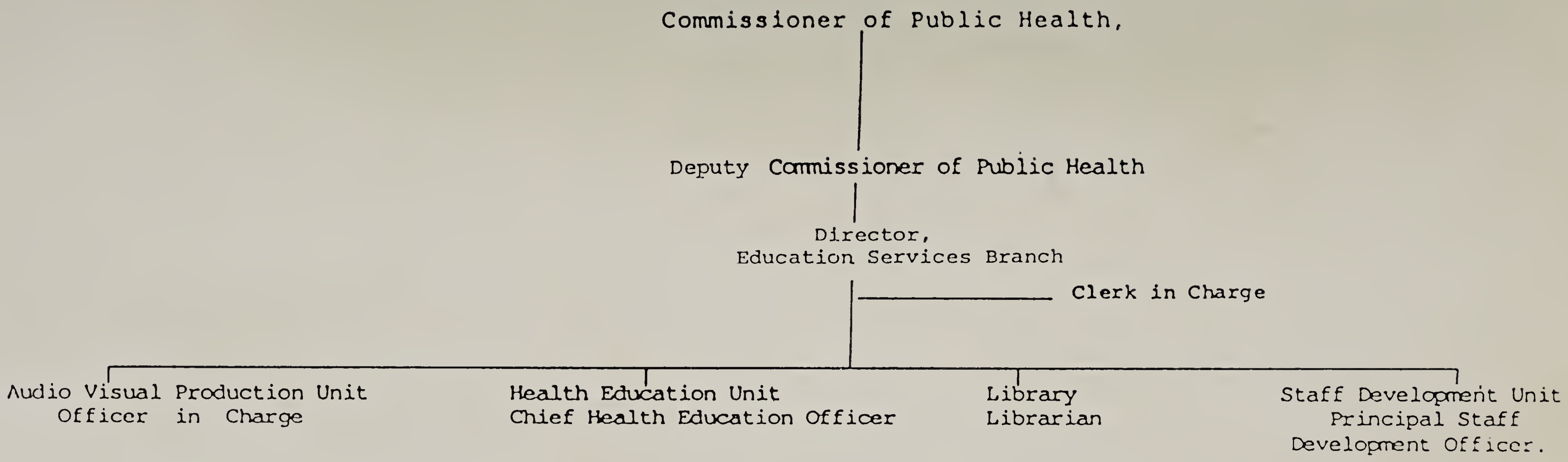
EDUCATION SERVICES BRANCH

J.M. Henzell,
M.B.B.S., D.C.H.
Acting Director,
Education Services Branch

SENIOR STAFF

Acting Director : Dr. J.M. Henzell
Clerk in Charge : Mr. P. Hemmings
Officer in Charge, Audio Visual Production Unit : Mr. P. Wilson
Acting Officer in Charge, Health Education Unit : Dr. C.R.R. Watson
Librarian : Mrs. B. Proud
Principal Staff Development Officer, Staff Development Unit : Mrs. J.M. Anstead

EDUCATION SERVICES BRANCH - ORGANIZATION CHART


Commissioner of Public Health,
Deputy Commissioner of Public Health
Director, Education Services Branch
Clerk in Charge
Audio Visual Production Unit Officer in Charge
Health Education Unit Chief Health Education Officer
Library Librarian
Staff Development Unit Principal Staff Development Officer.

STAFF DEVELOPMENT UNIT

During the six months to June 30, 1984 the following programmes have been planned, carried out and evaluated.

ABORIGINAL HEALTH WORKER TRAINING

A combined conference was conducted in Broome week commencing 14/5/84 - 18/5/84 for the Kimberley/Pilbara regions.

The theme addressed "Personal Development", with specific health issues relating to nutrition being discussed during the week.

Six workshops were conducted throughout the State. Topics addressed related to updating techniques in problem-solving, use of documentation, an update on diabetes mellitus and skin disorders.

COMMUNITY NURSING UNIT

This programme continues to be offered to nursing students based in teaching hospitals. It is designed to give the students and opportunity to appreciate theoretically and practically aspects of community nursing experience. The programme is offered every three weeks.

REGIONAL INSERVICE MEETING

Seven workshops for nurses have been conducted throughout the State.

The main thrust of input has related to the introduction of the Anti-Smoking project.

A variety of other identified and relevant health issues were covered by specific resource personnel.

WARBURTON WORKSHOP

A successful initiative involved a meeting of health workers in Warburton with health colleagues across the border (South Australia). The purpose of the venture was to assist locally based health workers with on-going education in their community. Visiting specialists were involved in the week's programme, which covered a variety of basic public health issues. A consideration has been put forward for a second such undertaking in 1985 with the venue to be decided.

INTRODUCTION TO THE FIELD PROGRAMME

Three programmes of five weeks duration have been completed. This programme offers a basic preparation to nurses entering the community nursing service. The focus is to broad based measures relating to health in the community.

METROPOLITAN NURSING MEETINGS

A variety of meetings are held on a regular basis, ranging from every second Friday to second month. These meetings are planned to meet the identified and ongoing need for updating specific skills used in practice.

Other involvement of staff relate to input being provided to students undertaking the child health option through the W.A.I.T. Community Nursing stream and to the child health students at Ngal-A Mothercraft Home.

ADMINISTRATIVE INDUCTION COURSE

This three day workshop to introduce new and/or transferring staff to Department philosophy, policy and function continues.

Although designed for administrative and clerical personnel, allied health professionals attending have found the course to be of help.

Aspects of communications and attitudes in the workplace is a focus, with some visits being made to health related areas.

MEDICAL OFFICERS INSERVICE

A workshop was conducted for medical officers in May. The week involved a review of services offered with clinical update.

DENTAL THERAPISTS

Two area workshops have been conducted in Bunbury. The theme requested has again involved aspects relating to improved human relations attitudes and communications in the workplace. A part of the workshop involved specific clinical update.

OTHER

A variety of incidental workshops of shorter duration have been carried out.

These involved a Management Information Systems Seminar presented to senior staff by P.A. Management Consultants Pty. Ltd.

A bioethics seminar addressing two topical issues, in vitro-fertilisation, and aspects of care related to the physically handicapped newborn. This seminar was conducted by Professor George Smith II, visiting Fulbright Scholar, Faculty of Law, Catholic University of America, who visited Perth in conjunction with the Department and the Faculty of Law, University of Western Australia. The reply papers were presented by Dr. Geoffry Lilburne, Obstetrician and Gynaecolgist, Sir Charles Gairdner Hospital, and Dr. Jeffry Tompkins, Paediatrician, Neonatal Unit, King Edward Memorial Hospital for Women. Dr. J.C. McNulty chaired the proceedings.

A workshop of one and a half days duration on Organisational Management was conducted for Regional Nursing Directors.

In conjunction with the Public Service Board and the Australian Institute of Management, several administrative and professional staff were afforded the opportunity to attend 2-3 day seminars at the Institute. Topics included, "Supervision", "Time-management", "Conflict Handling" and "Planning and Budgeting".

A wide number of personnel within the Department have also attended seminars external to the Department intra and interstate. These courses have related to acquiring skills, knowledge and attitudes pertaining to specific areas of responsibility.

Ongoing work involves the Unit staff in the consistent preparation of resource material for the variety of burgeoning courses currently offered.

LIBRARY

During the first six months of 1984 the DOBIS module of the DOBIS/LIBIS online library management package was mounted on the IBM mainframe. The DOBIS module, which constitutes the online catalogue, was subject to thorough investigation and editing of screens and by May the input of catalogued documents had begun. The benefits of this system will be far reaching, not only to our own users statewide, but to other health libraries in Western Australia and indeed the national health network HEMLOC (HEALTHNET). Also during this period a group met regularly to discuss and plan the implementation of the LIBIS module scheduled for October.

The purchase of a personal computer greatly enhanced service to users. Originally installed to allow interface with the HEMLOC system, it has also afforded word processing facilities and more efficient use of searching techniques on the external data bases.

The journal routing slip system which operates on the Cyber continued to provide great benefits, especially with the printing of address labels as well as routing slips. This system has greatly improved our journal circulation service, which is one of our most vital services to users.

The library has been represented at the following seminars and meetings:

Bicentennial Bibliography of Australian Medicine Committee

Health Care Museums Committee of W.A.
Australian Institute of Management Courses
GLASS (Government Libraries Automation Systems
Steering Committee)

'Capsules' continued to be a popular alerting service. The total number of requests in this period was 1089. This averaged out to 181 requests per issue. The most popular articles concerned exercise for back pain, staff burnout and migraine.

REPORTS FROM BRANCH LIBRARIES

Community and Child Health Services

In January, this branch was moved from its cramped accommodation in the

Rheola Street complex to Salvatori House. This new accommodation has proved to be most satisfactory. User demand on this branch is still increasing.

State Health Laboratory Services

Staff usage of this branch has continued to grow at a steady rate. The introduction of a newsletter has improved the service to remote users and the new journal circulation system implemented at the end of 1983 has proved to be successful. Accommodation at this branch is still rather restricted.

Health Education/Occupational Health

The demands on the film library housed in this branch have been enormous. The setting up of the Smoking Project Team further increased staff usage.

State X-Ray Laboratories

The retrospective cataloguing of the vast series collection held in this branch has now been completed. This project has greatly improved user access to the collection.

Dental Health Services

Although usage of the library has dropped this year due to the fact that dental therapy students are now trained at W.A.I.T., an essential service is still provided for dental health personnel.

Alcohol and Drug Authority

More shelving was installed to accommodate the expanding collection and library services have been increased to meet the growing user demand.

Hospitals Librarian

Although still constrained by a lack of support staff, the hospitals librarian has been very active. Hospitals visited were:

Nickol Bay
Roebourne
Port Hedland
Wickham

The collection at Swan Districts Hospital has been fully catalogued.

The lack of suitable audiovisual materials continues to be a problem.

STATISTICAL TABLES SHOWING:

Books Accessioned	(Table 1)
Inter-library Loans	(Table 2)
Book Loans	(Table 3)
Audio Visual Materials	(Table 4)
General Statistics	(Table 5)

TABLE 1
BOOKS ACCESSIONED

Public Health (Head Office)	676
Community & Child Health Services	231
Health Education/Occupational Health	86
State X-Ray Laboratory	148
Dental Health Services	19
Alcohol & Drug Authority	107
Hospitals	538
State Health Laboratories	197
TOTAL	2,002

TABLE 2
INTER LIBRARY LOANS

2.1 Interstate and Overseas Loans

Australia	236
Overseas	2
TOTAL	238

2.2 Intrastate Loans

Courier Service	503
Other	301
TOTAL	804

2.3 External Borrowings

Interstate and Overseas	162
Intrastate: Courier	887
Other	108
TOTAL	1,157

TABLE 3
BOOK LOANS

Head Office	1,122
Community & Child Health Services	1,601
State Health Laboratories	78
Health Education Unit/Occupational Health	277
Dental Health Services	169
State X-Ray Laboratories	188
Alcohol and Drug Authority	336
TOTAL	3,771

TABLE 4

AUDIO VISUAL MATERIALS

LOANS

	Films	Video Tapes	Slides	Kits
Health Education/Occupational Health	1,424	146	254	15
Alcohol and Drug Authority	7	8	2	
Dental Health Services	14			
TOTAL	1,445	154	256	15

TABLE 5

TABLE STATISTICS

		Head Office	ADA	CCHS	SHLS	DHS	HEU/OH	SXRL	Hospitals
Reference Queries		1,598	86	475	432	102	300	20	233
Computer Searches (Literature)		214	18	31	47	9	38	3	37
Photocopies Provided		21,307	461	1,394	416	110	670	15	1,843
New Journals		95							
No. Journals Cancelled		19							
Computerised Cataloguing (includes Branches)	Hits	282							
	Total Checked	557							

AUDIO VISUAL PRODUCTION UNIT

The Audio Visual Production Unit has continued to provide a Photographic, Art, Television and Audio Visual service, supplying the needs of numerous organisations including the following:-

- All Branches and Departments of the Health Department of Western Australia
- Princess Margaret Hospital
- Q.E. II Medical Centre
- King Edward Memorial Hospital
- Repatriation General Hospital
- Fremantle Hospital
- Various patient care associations and research foundations

Staff

The Unit has had one resignation from the Audio Visual Production staff. The position has been advertised and it is envisaged that a suitable applicant will be appointed in the near future.

Services

With the introduction of the new Health Department of W.A., a corporate plan was introduced to ensure that the services supplied by the Unit were most suitably utilised. The plan will undoubtly increase the demands of the services of the Unit.

Accommodation

The television studio is now fully operational and alterations are nearing completion on the art room, administration and store room.

Projects

Numerous requests in support of the anti-smoking campaign have been completed, as have many other projects including audio visual and television programmes. New projects are being planned and a number of productions are already under way involving all members of the staff.

Work Completed

Work completed over the period 1/1/1984 to 30/6/84 was as follows:-

Static Exhibitions		18
Tape Slide Programmes		6
Television Productions		
teaching	18	
clinical	20	38
General requests completed		1,390
		1,452

Total Units of work raised against various organisations 48,818.

HEALTH EDUCATION UNIT

During the first six months of 1984 the Health Education Unit, as part of the Education Services Branch, continued to provide health education services to other branches of the Department and to health related agencies, community organisations, schools and the public generally.

Following extensive discussions with the staff, a rationalisation of the structure and organisation of the Unit was implemented in April 1984. The changes involved the establishment of four sub-units each of which is directly responsible to the Director:

- The Programme Development and Publications Unit has the responsibility of developing and implementing health promotion programmes and associated publications and acting as a resource for regional and other metropolitan based staff. It also produces publications requested by other branches of the Public Health Department and community voluntary organisations, and includes the Health Education Unit Resource Centre which is located at the Unit's Fremantle office.

- The Community Health Unit has responsibility for promoting health at the local level by way of responding to community requests and implementing centrally developed unit programmes. This Unit comprises a network of regionally-based health education officers (six in the metropolitan area and 14 in country centres throughout the State) who are supervised by a senior health education officer. These officers are serviced by resource staff at Head Office, Perth, including the special support provided by the Chief Health Education Officer in the use of mobile displays and community liaison.

- The Smoking and Health Project Team has the mandate of co-ordinating and implementing the State Government's three year smoking control programme. It comprised staff with expertise in media and community liaison, smoking control interventions, and health education evaluation.

- The "Health Yourself" Shop operates from a shop located in the centre of Perth city. It employs a team of health advisers, and provides a number of services to promote healthy lifestyles in the community.

1. PROGRAMME DEVELOPMENT AND PUBLICATIONS UNIT

Publications

The Unit continued to produce and distribute health education publications for health workers, teachers, students and the public generally. Publications were provided to support Health Education Unit programmes as well as those initiated by other branches of the Public Health Department. These included the metropolitan fly campaign, canteen seminars, pesticide seminars and the pool sense programmes. Information materials on child development and health topics have been prepared and published and made available to the Community and Child Health Services and other organisations for distribution to parents. Representatives from the Health Education Unit, Child Development Centre, Community and Child Health Services and the Princess Margaret Hospital are selecting topics for publications which can be prepared for joint distribution. This will ensure uniformity of information given to parents. Examples of the materials which have been produced under this scheme are "Let's Look at Poisons", "Let's Look at Nappy Rash", "Let's Look at Asthma".

The quarterly publication "Health Education - News and Views" continued. This journal is mailed to readers throughout Western Australia, interstate and overseas.

Several publications have been produced to provide information for health professionals. An example is the "Inhalation of Volatile Solvents and Gases" pamphlet. By agreement this is being reprinted and distributed widely throughout Australia by the Commonwealth Department of Health.

For the period January 1 - June 30, 1984 distribution figures for the Unit's publications totalled 183,193 (excluding those distributed by the Smoking and Health Team).

Programme Development

Following the rationalisation of the structure and organisation of the Unit in April, 1984, a number of project teams were established which were given the responsibility of developing health promotion initiatives in a number of priority areas. These included: back health, nutrition, mental health, parenthood, medicinal drugs, alcohol and drugs, fitness, self care-health skills, sexuality, and environmental health. All metropolitan and some country regional health education officers belong to one or more of these teams and their activities in this regard are additional to their other duties. Each of these teams is actively involved in assessing educational needs and planning and/or implementating programmes. Among those which have been implemented in the last six months are:

(a) A three-and-a-half day educational training programme was provided by the Alcohol and Drug Project Team for the Police Lecturing Branch. It aimed to provide participants with an overview of issues related to drug abuse and dependency in our society, with information about various strategies which can be employed in drug education programmes, and to assist them to acquire skills in the presentation of such programmes. Over 90% of the participants rated the course as highly relevant to their work as police lecturers.

(b) The Aboroginal Health Project Team has supported the Cervical Cancer Programme amongst women (Community and Child Health Service initiative) by developing "Vicki", a comic form information leaflet which aims to encourage women of Aboriginal descent to present for a regular cervical cancer screen.

(c) The Sexuality Project Team has prepared a programme with a workshop format which can be used to develop a school-based human sexuality syllabus. A workshop has been prepared for use in the programme and the first of these workshops will be held towards the end of July, 1984.

(d) A major initiative for the first half of this year was the development and production of the Health Skills Programme by the Health Skills Project Team. The objective of this programme is to develop personal responsibility for health amongst adults and to develop skills and knowledge in health maintenance. The programme was designed by an outside consultant, and the Leader's Manual and Participants' Workbooks were developed and written by a senior health education officer of the Health Education Unit. The programme contains modules relating to self-care, stress, body awareness and nutrition. It was piloted by regional officers of the Unit during June and all regional health education officers will be trained in its use during August, for implementation in the following months.

(e) In view of the considerable public interest in questions relating to the use and choice of pesticides and other agricultural chemicals, the Public Health Department in association with the Department of Agriculture decided that it would be appropriate to mount one-day seminars in major country centres. While these were designed to be of interest to the general public in particular, they were aimed at meeting the informational needs of the primary producer and other people associated with the rural sector. The Environmental Health Project Team developed these seminars and produced a handbook which provided background information and papers for the seminar on the choice, uses handling, storage and disposal of pesticides and other agricultural chemicals which are in common use in rural areas. Two successful pilot programmes were conducted in Harvey and Busselton in March 1984 and further programmes have been planned for Albany and Narrogin during September.

Other Activities

The Health Education Unit Resource Centre continues to service staff needs. It contains a growing selection of local, national and international health education programmes and teaching aids. These materials are used by staff members in programme planning and implementation, as well as in the development of Unit publications. A bi-monthly newsletter developed from user queries and new additions to the Resource Centre collection is circulated to staff.

The professional staff of the Programme Development and Publications Unit have responded to an increasing number of requests for information on health matters from the general public, and have acted as a resource for field officers and other health professionals.

Apart from her activities in connection with the Unit's Aboriginal Alcohol Education initiatives (see below) and with the Aboriginal Education Project Team (see above), the officer responsible for Aboriginal Health Education has continued to be involved in the Departmental Health Workers' Training Programme. She has begun to assess Aboriginal health education needs through discussions with relevant health professionals, and has responded to requests from schools and local community groups for talks on Aboriginal health education matters.

The officer responsible for migrant health education continued to arrange for the translation and production of printed and audio-visual material in a variety of community languages. On-going assistance with lectures and programme planning was offered to other Health Education Department staff working with migrants, teachers or migrant english classes and tertiary training programmes for health and welfare professionals.

The Environmental Health Education Officer has been involved extensively in the preparation and presentation of various programmes (see above). He has also participated in the planning and implementation of the Designated Officers' Pesticides Course which was initiated by the Premier. The handbook which was produced for this course was a modified version of the Health Education Unit's Pesticide Seminar Handbook. This officer has also responded to an increasing number of requests for information on environmental health matters from health surveyors, other organisations and individuals throughout the state. He has spoken to school and community groups, and assisted in the organisation of several pool sense programmes in the wheatbelt, south-west and metropolitan areas.

The Director has represented the Unit on a number of committees concerned with the promotion of health in Western Australia. These include: The Data-Base Working Group, Steering Committee on the Review of Health Promotion and Health Education in Western Australia; The National Heart Foundation Directors' Board; The National Heart Foundation's Education Committee; The Australian Council on Smoking and Health; The Children's Health Education Project Committee; The Western Australian Alcohol Education Project Committee. He has also liaised with several tertiary institutions including the Western Australian Institute of Technology and the University of Western Australia in connection with the development of courses and health promotion initiatives.

St. George's Hall has again been used by the Theatre of Difference, a theatre group which draws its members from the active therapy group (Division of the Paraplegic-Quadriplegic Association) and from the Civilian Maimed and Limbless Association. The hall has also been made available for meetings conducted by other voluntary organisations.

2. COMMUNITY HEALTH UNIT

Regional health education officers continued to be involved in the development and implementation of a wide variety of local health promotion programmes, including interventions initiated from Head Office. Over the past six months a substantial proportion of their time was devoted to the implementation of Phase 1 of the Smoking and Health Project. In addition, one regional officer organised a special event for the "Health Yourself" Shop. This was "Nutrition Week" which commenced at the end of June. It aimed to give people the opportunity to discuss any questions they might have about nutrition with trained dietitians, and to provide them with accurate, free, printed nutrition information. Practical demonstrations were given each day on preparing and cooking healthy meals. In all, dietitians conducted 318 individual nutrition consultations. The cooking demonstrations were watched by approximately 730 people. The sales of nutrition material rose substantially following the publicised opening of "Nutrition Week" with these increases being maintained throughout the week and for a few days thereafter.

Regional health education officers also responded to local requests for resources, advice and assistance to schools, tertiary institutions, other health professionals and agencies, as well as developing and delivering a wide variety of health education programmes in their respective communities.

A major development has been the involvement of several officers in presenting local health displays at country centres such as Karratha, Broome, Harvey, Southern Cross, Esperance, Kalgoorlie, Kununurra, Merredin and Geraldton. The preparation and delivery of these displays had two important features. Firstly, in each case the regional health education officer concerned was able to organise a team of health professionals in his area in the development and presentation of the display. Secondly, each display featured a physiological testing and health consultation service for the public.

Several country-based officers have submitted articles to health columns in local newspapers and have presented sessions on radio. Some have assisted in the delivery of worksite health education programmes. The most notable example of these was a stress management programme for Lysaght Steel and a health promotion programme for office staff at Telecom, Bentley.

Regional officers also presented sessions at a variety of training and in-service programmes including the Community and School Health Nurses' Orientation Programme, Holyoake Training School, Police Lecturing Branch, the Registered Nurses' Training School at Warren District Hospital, Manjimup and the Aboriginal Health Workers' Workshop in Kalgoorlie.

A feature of health promotion in country areas has been the advent of local health and welfare committees. Some of these have been initiated by hospitals and others by other local health professionals. The main involvement of regional health education officers has been in a consultative and/or co-ordinating role. Regional health education officers have also assisted in developing and delivering training programmes for the volunteers of Home Help Services in Armadale and Kwinana, co-ordinating a youth health seminar in Kalgoorlie, and in delivering pesticide seminars in Harvey and Busselton.

Planning began for the Health Works Project. This Project, designed to assist local groups to become actively engaged in health promotion activities, will use a health works marquee which will contain videos, films, printed material, stickers, invitation cards, instrumentation for health assessments (for example, blood pressure, height and weight measures), mobile displays, etc.

An audio-visual has been produced for Health Department workers in conjunction with the Community and Child Health Services, the Alcohol and Drug Authority, Aboriginal Alcohol Rehabilitation organisations, the Audio Visual Unit of the Public Health Department, and members of local Aboriginal communities. The audio-visual has been designed to encourage people of Aboriginal descent to use alcohol rehabilitation services. Support has been given to the Community and Child Health Services' Cervical Cancer Programme for Aboriginal women through the production of a participant video programme which will be implemented in early December. This Unit has supported the pesticides seminar with the provision of mobile displays, and has assisted in the production of health tents at two country agricultural shows (Katanning and Harvey).

The chief health education officer represented the Health Education Unit on the Venereal Disease Co-ordinating Committee, the W.A. Alcohol and Drug Dependence in Industry Committee, the Cancer Foundation Education Committee, the Salvation Army Alcohol Advisory Committee, the Aboriginal Alcohol Educational Resource Working Party, the Child Accident Foundation (W.A. Branch) and the W.A. Heart Foundation Committee.

3. SMOKING AND HEALTH PROJECT TEAM

The Smoking and Health Project Team was formed in January, 1984. The first six months of 1984 saw the implementation of Stage 1 of the State Government's Smoking Control Programme and the opening of the "Health Yourself" Shop (see below for details). The Smoking and Health Project comprises two stages with the overall aim being to reduce the incidence of smoking in the community. To achieve this, there are four major areas for action state-wide, including analysis of the local smoking problem, public information and education programmes to be delivered through schools, the media and community agencies. As noted above, several new health education officers have been appointed to complement existing officers in effecting programmes at the local community level. Various community agencies have been funded by the Project including the National Heart Foundation, to run stop- smoking groups and The Theatre of Difference to produce "life in the Big Smoke", a punk rock musical for children. The two primary target groups for the programme are adults 25-45 years of age who want to stop smoking and children of 10-14 years of age. Stage 1 - the adult programme is due for completion in August, and Stage 2 - the programme for children - will follow.

The adult programme was launched on April 30, 1984 and comprises four phases:

- Phase 1 (four weeks) raised awareness of the health facts about smoking. The Quit Line was put into operation at this stage to provide referral options for people wanting to stop smoking.

- Phase 2 (three weeks) was the "fresh breath of life" stage designed to get smokers to make a commitment to give up smoking. This featured the "quit, take a fresh breath of life" commercial and used symbols strongly associated with smoking by smokers like cigarette packet crushing and ashtray emptying.

- Phase 3 (one week) provided people who had made a commitment to stop smoking, with all the available support and assistance to do so. Promotional elements for Quit Week included a five-day Quit Plan booklet in the "Sunday Times", personal counselling on telephones and at the Quit Centre in the "Health Yourself" Shop, lunchtime and after-work support groups in the city, daily changes of messages on Quit Line to support the five-day programme, and six sixty-second nightly commercials presented by Barry Crocker.

- Phase 4 (seven weeks) which continues until August 12 is maintenance. Along with helping people not to take up smoking again, during this final phase there will be a mix of the previous commercials to continue motivating smokers to quit.

A range of publications has been produced for this programme, including planning documents, information manuals, pamphlets containing facts about smoking and advice relating to giving up smoking quit kits, posters, bumper stickers and advice to parents about what they can do about their children smoking. For the period January 1 to June 30, 1984, 163,432 publications have been distributed by the team.

The campaign to date has been very well received and as a result from initial surveys would indicate, highly successful. In the first four weeks of the programme 40,000 people (16% of smokers) attempted to stop or reduce smoking, and of these 20,000 people (8%) have succeeded. There were over 17,000 calls to the Quit Line during Phase 1, and 64% of smokers were in favour of the programme.

4. THE "HEALTH YOURSELF" SHOP

The "Health Yourself" Shop opened in February, 1984, funded by the Smoking and Health Project. While it was intended that a major role of the Shop would be to encourage smokers to quit, it was envisaged that the facility should present a comprehensive picture of healthy lifestyle activities.

A major feature of the approach used in the Shop is an emphasis on encouraging individuals to take responsibility for their own health. This philosophy, often given the label of "self care", recognises that many of our current health problems are exacerbated by over dependence on medication and medical services. In addition, a holistic approach is presented so that clients understand the inter-relationship of factors that affect their lifestyle patterns. A prominent theme of the Shop is in the direction of disease prevention with an emphasis on issues such as smoking, stress management, nutrition, exercise and alcohol use.

The Shop is staffed by health advisers who are competent to assist with the provision of information and referral to professional agencies. A wide range of printed and other material on health issues is available free of charge and for sale. A computer lifestyle assessment and other testing equipment are employed to encourage the public to take positive steps to improve their health.

As part of the Smoking and Health Project, a Quit Centre with experienced counsellors was established with the "Health Yourself" Shop during Phase 3 of the Quit Smoking Campaign. During the first six months, topical health campaigns have been conducted at the Centre. Some of these were International Footcare, Arthritis Week, Quit Week and Blood Pressure Week. Other services include, health-related audio-visual displays operating constantly on the Shop's two television monitors; stress management and relaxation courses for clients; a computer programmed to display health-related information with which the public can interact; and a large collection of resource material is available for teachers and other professionals working in the area of health. The Shop also recognises the need to get out into the community and has been involved with health promotion activities at W.A.I.T. and the University of W.A.

It has been estimated that in the first three months of operation, over 12,000 people visited the Shop and of these 955 completed healthy computer lifestyle assessments. From the start of the Smoking Control Programme at the end of April to June 30, there were 2,000 enquiries to "Health Yourself" staff. These covered a range of health problems particularly weight, stress and exercise.

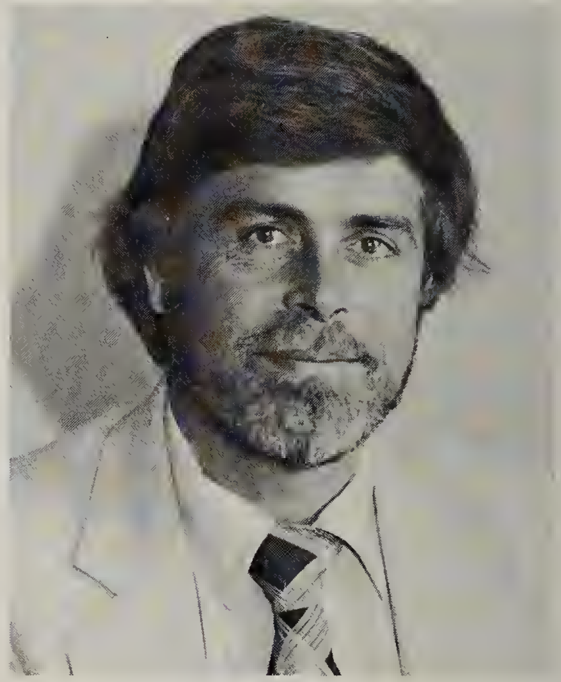
Appendix IX

INSPECTIONS SERVICES BRANCH

SENIOR STAFF

Director : Dr. R.S.W. Lugg
Medical Officer : Dr. C.D.J. Holman
(seconded from Executive Branch from 5/9/83)
Food & Nutrition Officer : Mr. M.P. Jackson
Waste Disposal Engineer : Mr. S.B. Hansen
Chief Health Surveyor : Mr. R.C. Zehnder
Deputy Chief Health Surveyor : Mr. R.W. Sweetman
Senior Health Surveyor (General) : Mr. R.L. Moss
Senior Health Surveyor (Food & Liquor) : Mr. A.L. Layton
Senior Health Surveyor (Public Buildings) : Mr. K. Watt
Senior Health Surveyor (Meat) : Mr. G.F. Jeffries
Senior Health Surveyor (Waste Management) : Mr. B. Devine
Senior Health Surveyor (Research & Special Projects) : Mr. W.G. Jolley

R.S.W. Lugg,
B.Sc., M.B.B.S., M.P.H.
Director

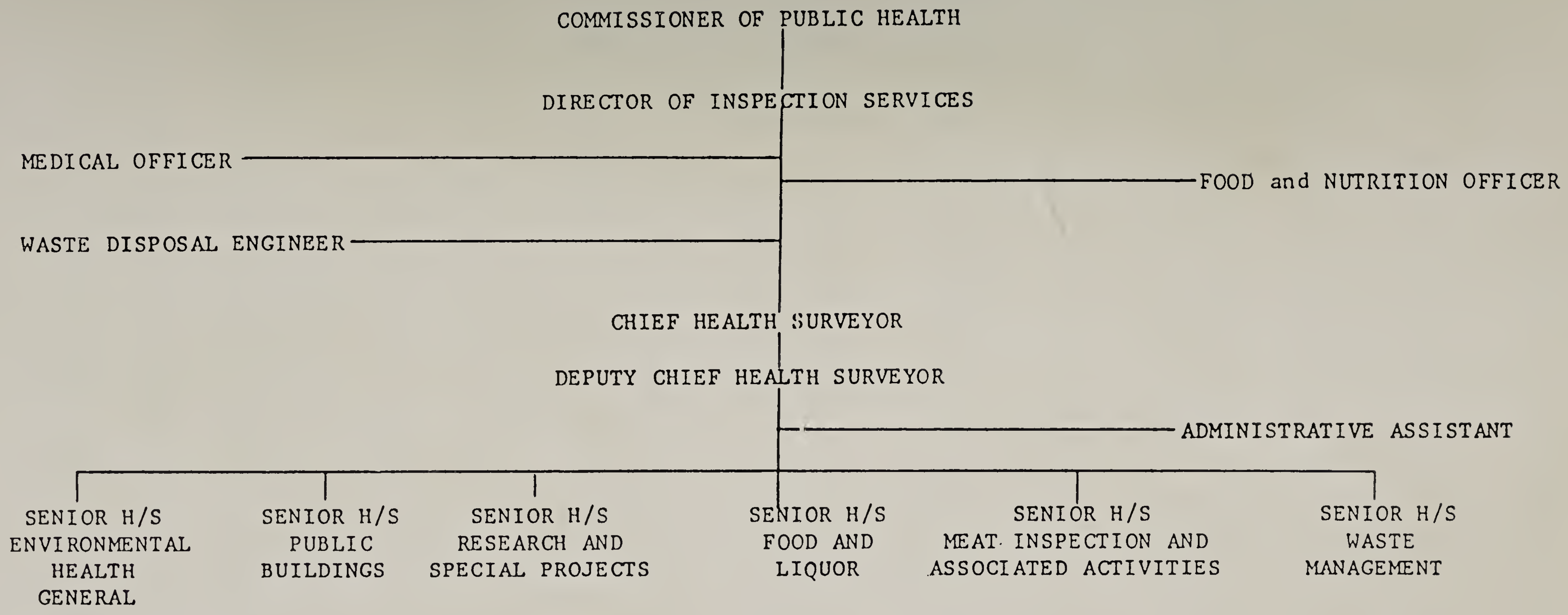


S.B. Hansen,
B.Eng.(Chem.), M.I.E. Aust.
Waste Engineer

M.P. Jackson
B.Sc. (Hons.) A.I.F.S.S.T.
Food and Nutrition Officer

R.C. Zehnder,
M.R.S.H., M.A.I.H.S.
Chief Health Surveyor

INSPECTION SERVICES BRANCH


COMMISSIONER OF PUBLIC HEALTH
DIRECTOR OF INSPECTION SERVICES
MEDICAL OFFICER
FOOD and NUTRITION OFFICER
WASTE DISPOSAL ENGINEER
CHIEF HEALTH SURVEYOR
DEPUTY CHIEF HEALTH SURVEYOR
ADMINISTRATIVE ASSISTANT
SENIOR H/S ENVIRONMENTAL HEALTH GENERAL
SENIOR H/S PUBLIC BUILDINGS
SENIOR H/S RESEARCH AND SPECIAL PROJECTS
SENIOR H/S FOOD AND LIQUOR
SENIOR H/S MEAT INSPECTION AND ASSOCIATED ACTIVITIES
SENIOR H/S WASTE MANAGEMENT

INSPECTION SERVICES BRANCH

INTRODUCTION

Reports on branch activities, covering the half year to June 30, 1984, have been compiled by officers of the section to coincide with the demise of the Public Health Department.

It should be recorded that the last Chief Health Surveyor of the Public Health Department, Mr. Zehnder, will retire at about the same time concluding almost 40 years involvement with public health in Western Australia.

During the period under review, major changes have been introduced in rubbish collection methods and these are being closely watched by local authority and health department officers.

Legislation developments include completion of regulations - to control the dealing in used clothing, rags and associated materials. Swimming Pool Regulation amendments have been completed. Work is progressing on Offensive Trades and Model By-laws amendments.

Involvement with the Shire of Carnarvon increased dramatically following the 1983 enquiry and a senior officer was placed in charge of council's health department for a period of 3 months. During this period various specialist officers were made available to assist. The appointment of a highly experienced and capable officer by council decreased the need for Departmental involvement.

Commonwealth funding resulted in the introduction of the Environmental Health Maintenance and Improvement Programme which involved Departmental officers in visits to various areas of the State over a period of three months. Results proved encouraging in improving sanitation standards of various Aboriginal settlements.

The meat industry continues to show signs of depression due, in part, to the change of many farmers from meat animal production to cereal crops and the continuing export of live animals.

Abattoirs within the State are not working to capacity.

With the assumption of responsibility for instructing and licensing pest control operators, the section has seen an increase in staff numbers due to the movement of persons previously involved in this function in another area. Overall workload of section officers is seen to have increased as has the amount of overtime worked in some areas.

Food and liquor surveillance has been generally maintained although liquor sampling activities have been somewhat curtailed due to staff shortages.

There is an increasing demand for advice and assistance from local government, industry generally and the public.

MEAT SECTION

The Perth metropolitan meat market has undergone extensive upgrading and extensions in line with modern practices. A dispute in 1983 between country abattoir proprietors and the Western Australian Lamb Marketing Board resulted in lambs being imported from the Eastern States; this trend to import lambs from South Australia and Victoria has continued in increasing numbers for the first part of 1984.

Lambs are inspected and branded on arrival, in accordance with the Meat Inspection and Branding Regulations, resulting in an additional workload on meat staff operating from head office.

Increasing consignments of pork and smallgoods have been transported to other States of Australia.

Smallgoods, Salmonella and Serological Monitoring Programme

This programme has continued at all major smallgoods factories in the metropolitan area. Management of the various establishments fully support this programme and co-operation from staff is excellent.

Country Abattoirs

Establishments have been visited at intervals throughout this first period of the year and officers have advised meat inspectors on the correct procedure to improve the standard of meat inspection.

Illegal Slaughter

All reported cases of illegal slaughter have been investigated, no legal action has been implemented by this department.

Watsons Food Abattoir

This company relinquished its export licence and all processing of pigs and manufacturing of smallgoods is under total control of this department.

Meat Industry Authority

Senior officers have attended all monthly meetings and advised the Authority on matters concerning meat inspection and construction standards of abattoirs.

Abattoir Data

49 registered local abattoirs operating June 30, 1984.

11 registered export abattoirs.

9 registered abattoirs - no inspection.

2 abattoirs closed.

99 inspections were carried out in country abattoirs to June 30, 1984, the majority were visited twice during this period.

Total kill figures - Local Authority

Beef	97,564
Veal	6,706
Sheep and Lamb	475,376
Pigs	75,381
Goats	2,344

Carcases Condemned

Beef	130
Calves	24
Sheep and Lamb	3,757
Pigs	137
Goats	3

Part Carcases Condemned

Beef	368
Calves	2
Sheep and Lamb	1,808
Pigs	558
Goats	6

Kill figures - Metropolitan Abattoirs - Local and Export

Robb Jetty

	Local	Export	Total
Beef	4,144	6,724	10,868
Veal	407	73	480
Lamb	42,537	51,104	93,641
Mutton	Nil	116,054	116,054
Goat	Nil	49,312	49,312
Pigs - Watsons Foods	120,537		

Karnet Prison

Cattle	548
Veal	Nil
Sheep	4,396
Pigs	488

Imports from Other States

Lamb Carcases	67,295
Cartons of Lamb	774
Cartons of Beef	39,473
Bodies of Beef	13
Cartons of Veal	143
Carcases of Veal	20
Cartons of Pork	185
Carcases of Pork	632
Cartons of Poultry	25,214
Rabbits (Pairs)	21,670
Kangaroo Bulk	169.5 Tonne
Kangaroo Carcases	9,809
Cartons of Offal	452

Imports from New Zealand

Cartons of Venison	30
Cartons of Mutton	2,993

Laboratory Samples

A total of 3,398 samples were submitted comprising

Effluent	314
Poultry	200
Meat (Raw)	566
Equipment	433
Serological	132
Handwash	1,290
Moore swabs	173
Smallgoods	193
Water	28
Condiments	17
Faecal	12
Pet Meat	38
Chemical	2

Meat Transferred to Other States

Cartons of Smallgoods	11,041
Cartons of Beef	731
Bodies of Beef	20
Beef Quarters	1,430
Cartons of Mutton	2,285
Cartons of Lamb	80
Cartons of Pork	19,249
Cartons of Pork Fat	3,927
Cartons of Pork Rind	591
Cartons of Pork Maws	445
Cartons of Pork Bones	187
Cartons of Hamburgers	15,237
Cartons of Offal	3,334
Tins of Lard	210

MEAT INSPECTION FOR THE PERIOD 1ST JANUARY 1984 TO 30TH JUNE 1984

		CARCASES CONDEMNED											PART CARCASES CONDEMNED							ORGANS CONDEMNED				
ABATTOIR AND TYPE OF STOCK SLAUGHTERED	Stock Slaughtered	Tuberculosis	Actinomycosis	Emaciation	Caseous Lymphadinitis	Pyrexia	Paratyphoid	Polyarthritis	Icterus	Traumatic and Other Septic Conditions	Contamination and Other Abnormalities	T O T A L	Tuberculosis	Actinomycosis	Caseous Lymphadinitis	Arthritis	Contamination	Other Abnormalities	T O T A L	Actinomycosis	C.Ovis	Hydatids	Other Abnormalities	T O T A L
ROBBS JETTY –																								
Cattle	10868	4								3	5	12				51		839	890				1506	1506
Calves	480																							
Sheep & Lambs	202339				1147						867	2014											19793	19793
Goats	49312										259	259											2488	2488
WATSONS –																								
Pigs	120537			1		10		73	3	12	13	112				495		23518	24013				24199	24199
KARNET –																								
Cattle	548																						1	1
Calves																								
Sheep & Lambs	4396				5			16			1	22			2				2				347	347
Pigs	488							6				6											6	6
*COUNTRY DISTRICTS –																								
Cattle	97564	5	2	10		2		10		39	62	130	1	49		96		222	368	31			3251	3282
Calves	6706			5				1		1	17	24				2			2				4	4
Sheep & Lambs	475376			703	399	80		303	6	201	2065	3757			128	989	13	678	1808		5164	191	44895	50250
Pigs	75381					15		63		16	43	137				330	3	225	558				3196	3196
Goats	2344			2		1						3						6	6				2	2
TOTAL STATE –																								
Cattle	108980	9	2	10		2		10		42	67	142	1	49		147		1061	1258	31			4758	4789
Calves	7186			5				1		1	17	24				2			2				4	4
Sheep & Lambs	682111			703	1551	80		303	6	201	2933	5777			130	989	13	678	1810		5164	191	65035	70390
Pigs	196406			1		15		142	3	128	2065	2354				825	3	23743	24571				69100	69100
Goats	51656			2		1					259	262						6	6				2490	2490

Note: Country Abattoirs included –
Augusta/Margaret River, Boulder, Bridgetown/Greenbushes, Bruce Rock, Busselton, Bunbury, Capel, Carnamah, Carnarvon, Coolgardie, Dardanup, Denmark, Esperance, Gascoyne*, Gingin, Goomalling*, Greenough, Harvey, Katanning*, Kojonup, Kalgoorlie*, Manjimup, Merridan, Moora*, Northampton, Narrogin*, Northam, Plantagenet*, Tammin*, Toodyay, Three Springs, Wagin, Woodanilling, Waroona*, Wongan-Ballidu.
*Only figures for stock slaughtered, no condemn figures.

HEALTH SURVEYING BRANCH

FOOD AND LIQUOR SECTION

Food General

Investigation of marketing of food products, for compliance with the Food and Drug Regulations continued during this half year, with regard to wholesomeness, compositional standards, additives and labelling.

Submission of drafts of proposed new labels for approval continued with an increase in the perusal of existing labels and related advertising literature. Interest and awareness in food labelling from the food trade, general public and overseas companies appears to be maintained.

Sampling

Sampling in relation to routine and special investigations continued. A total of 1,241 samples for microbiological and chemical examination were submitted. (Appendix I).

Total non-food samples (miscellaneous) submitted were 630 (Appendix II).

Complaints

Investigation and assessment of State-wide food complaints and co-ordination of related activities. Total received 341. (Appendix III).

Total food condemned as unfit for human consumption. (Appendix IV).

Special Investigations and Activities

Market Basket Survey

One seasonal sampling programme effected in this half year, involving selected variety of foods from particular areas for determination of pesticide and metal residuals.

Poultry Processing Establishments Monitoring

Salmonella monitoring and hygiene surveillance continued at the four major poultry processing establishments. Sampling of poultry meat brought into Western Australia from other States has also been carried out. This programme continues to be effective in assisting in identifying actual and potential problems, with consequent reduction of related food poisoning outbreaks; it has also facilitated the tracing of specific infection sources.

Close liaison with industry and State Health Laboratory Services continues to be maintained.

Advisory and Supervisory Service to Local Authorities

The section has continued to be involved with local authority health surveyors in regard to food standards and food hygiene requirements.

Included was a three week survey of standards of existing food premises and related activities in the Shire of Carnarvon.

Enteric Diseases, Notification and Investigation

Advising local authority health surveyors concerning investigations, interviewing of contacts, determination of dietary history and Departmental correlation of information involves close liaison with State Health Laboratory Services, medical officers and other concerned parties; follow-up investigations are arranged as required.

Health Education

The section continues to provide an advisory service in the form of lectures and presentation of audio-visual material to interested bodies on request.

Organisations served have included Narrogin District Hospital, Pelican and Cromane Children's Hostels, Bentley Technical College, various local authorities and the catering industry.

Continuing Activities

Surveys, monitoring investigations and services commenced prior to this half year and still continuing include:-

Food Hygiene Advisory Service - liaison with architects and builders, plan and specifications examination and on site inspection.

Easting Houses on Government Premises

Routine on site inspections of existing premises, response to enquiries and complaints, examination of plans and specifications on proposed new premises.

Royal Agricultural Showgrounds

Food standards and food hygiene surveillance at relevant functions, including "Home Show" "Easter Fair" and "EXPO".

Mussels

Mussels from Cockburn Sound sampled every two weeks for heavy metal determination, plus random sampling of unprocessed mussels for microbiological examination.

Mercury Content in Fish

Sampling of raw and cooked fish from retail outlets in country and metropolitan outlets; results generally within the prescribed limits.

Routine sampling of imported fish has resulted in three consignments which exceeded acceptable limits being rejected.

Goat's Milk Survey

The survey of the microbiological status of goat's milk has been completed during this half year.

Food Legislation

A senior officer continued to be involved in the Working Party on Uniform Food Legislation Health Act Review Committee.

Appeal Investigations

Section officers have had considerable involvement in the investigation of appeals to the Commissioner of Public Health by persons aggrieved by local authority decision.

R.A.A.F. In-flight Meals Survey

A service has been provided to the R.A.A.F. in assessing standards of in-flight meals. Samples have been submitted for laboratory examination and results discussed with relevant R.A.A.F. officers.

Recalls - Deficient Food

"Vetta" Lasagna

Following advice from the Commonwealth Department of Health that staphylococcal contamination had been detected in Italian produced "Vetta" Lasagna, a State-wide recall was implemented and all stocks held. Sampling was carried out and all proved negative - all stocks were released for sale, being deemed suitable for human consumption. No subsequent problems with the product were encountered.

Suimin Products

Quick Lunch and Meal in a Cup

The Department of Health, Canberra, advised that some varieties of these products, produced in Queensland, had been found contaminated with Salmonella organisms. A State-wide recall and sampling programme was implemented. Results of microbiological examinations indicated presence of Salmonella organisms in a wide range of varieties.

Following further examinations, liaison with Queensland Department of Health and Medical Services and correlation of nation-wide results, a consignment was returned to Queensland, the balance of products found positive were destroyed in Western Australia.

Kelp Products - Arsenic Content

Analysis of various kelp products indicated that some were in excess of the acceptable limits for inorganic arsenic and could pose a health problem for consumers.

All companies reacted favourably to advice to withdraw products containing high levels.

There were no cases of arsenic poisoning reported within this State.

IMPORTED FOODS

Examination of imported food carried out a Fremantle Wharf, Perth Airport, Kewdale Rail Complex and various depots receiving containerised food products throughout the metropolitan area.

Foods are not released until favourable microbiological and/or chemical results received. Close liaison is maintained with Commonwealth Government authorities.

Containers of Fish Examined

Fremantle area	132
Perth metropolitan area	190
TOTAL	322

Total weight of fish = 3,641,325 kgs.

Fees raised for inspection of fish = $12,143.85.

Fremantle Wharf

Compiled below are statistics for activities conducted at Fremantle Wharf for the period January 1 to June 30, 1984.

Fish Samples	Bact.	Chem.
Shellfish	595	105
Fish		715
Other Foods		
Desiccated Coconut	203	102
Black Pepper	5	1
Sesame Seeds	10	
Sesame Oil	15	

Total Samples :		
	Bact.	828
	Chem.	923
		1751

Condemnations

130 bags desiccated coconut	41 kgs.
5 blocks C & P shrimps	10 kgs.
11 bags black pepper	400 kgs.
11 jars anchovies	5.34 kgs.
32 boxes dried pitted prunes	400 kgs.
TOTAL	856.34 Kgs.

2 containers - 398 bags - desiccated coconut - unsatisfactory sulphur dioxide levels - re-exported to Philippines.

Total weight : 19900 kgs.

Figures for live sheep exports - incomplete. 11 ships to February 3, 1984.

Other activities conducted whilst at the wharf include general hygiene inspections of wharf area - toilets, canteen (North Wharf and Victoria Quay), Fremantle Function Centre, Kiosks, Port Beach.

Compared with the same period last year, the figures for total weight of fish imported has increased, which has been the trend in recent years. At peak periods, especially Christmas, Easter and end of financial year, the workload is extremely strenuous with the demands for inspections being very high. This not only affects the person on the wharf, but places increased demands on staff in head office. As has been mentioned, this trend looks to be increasing with the increased quantity of imported fish products.

LIQUOR INSPECTIONS

Incorporating on site testing of liquor and general hygiene surveillance. Activities related to staff availability.

Liquor Outlets Inspected to June 30, 1984.

	Metro	Country
Hotels	67	4
Taverns	59	7
Clubs	56	2
Restaurants	61	1
Winehouses	5	
Canteens	1	
Limited Hotels	4	
Cabarets	1	
TOTAL	254	14

Spirits Tested

	Imported	Australia	Total
Whisky	774	28	802
Brandy	22	221	243
Rum	217	223	440
Gin	156	89	245
Vodka	38	204	242
Sundry	131	5	136
TOTAL	1,338	770	2,108

APPENDIX I

FOOD SAMPLES 1S JANUARY, 1984 - 30TH JUNE, 1984

	Chemical	Bacteriological	Serological	Mycology	Electrophoresis
Bread and Flours	3	4			
Cereals		4			
Champignons	3				
Chicken		570			
Products		66			
Coffee and Cup	1				
Dehydrated Meals		130			
Del Rosa Syrup	1				
Egg Pulp		5			
Fish - Fresh		35			4
Prepared		15			
Shell	36	170			
Smoked	1				
Tinned	1				
Frogs Legs		5			
Fruit Juice	2				
Goats Milk		400			
Ice Cream	4				
In Flight Rations		80			
Kelp	15				
Lasagna		18			
Meats		7			
Mineral Waters	13				
Non Alcoholic Drinks	29				
Nuts	6				
Paprika		30			
Small Goods	1				
Soft Drink	1				
Sugar	1				
Tea	2				
Tripe	22				
Yoghurt		3			
TOTAL	142	1542			4

APPENDIX II

MISCELLANEOUS SAMPLES

	Bacteriological	Chemical
Bench Swabs		21
Chicken Processing		169
Chickens		5
Cloacal Swabs		4700
Effluent (House)		5
Poultry Processing		139
Faeces (Human)		48
Hand Washings		55
Moore Swabs		64
Pet Food		10
Estab. Swabs		13
Powder (White)	1	
Soap	1	
Stock Feeds		6
Stock Litter		17
Sykes Hydrometer	1	
Tampax		1
TOTAL	3	5253

Continued Departmental presence in the Kimberley region is maintained by two Departmental officers stationed in the region.

In addition to this service, extra duties were carried out with the provisions of Commonwealth funding in providing three officers for health education to aboriginal settlements in the Kimberley, Pilbara and Eastern Goldfields regions.

This involved three officers for a period of three months visiting the various settlements and advising on care and maintenance of septic tank systems, water supplies, pest control refuse disposal and treatment of dogs in regard to parasitic and flea control.

A service is also being provided for the Shires of Cue, Mount Magnet and Meekatharra. This involves routine inspections of food premises, mining camps, septic tank installations, schools and public swimming pools.

A comprehensive assessment of health standards has been carried out in three shires. This has resulted in some deficiencies being brought to the attention of the health surveyors and in one instance the recommendation for an extra health surveyor to be employed in order that a proper health service could be provided to the area.

A full inspection in regard to hygiene and sanitation standards in all fourteen prisons has been carried out in accordance with the requirement of the Prisons Regulations , with reports forwarded to the Director of Prisons for his information and any necessary action.

Inspections of Perth Airport have been carried out in association with representatives of the Department of Aviation and various airline companies. Food handling storage and sanitation is always found to be of a high standard.

There is an increasing demand from Local Authorities for increases of penalties provided under the Health Act. A number of these have been increased and others are under review.

An extensive survey of tattoo parlours has been carried out in order to determine what health risks may exist and whether legislation is necessary to control operators.

A considerable number of appeals against local authority orders are still received. These are mainly related to work orders or other notices on dwellings, although other contentious issues are stable by-laws and the keeping of poultry.

A continuous water sampling programme of ocean, lake and river waters is carried out on a regular basis. Numbers of samples from January 1, 1984 to June 30, 1984 were as follows:-

Ocean	312
Lakes	78
Rivers	510

Ocean samples cover 26 areas from Wells Park Beach in Kwinana to Burns Beach in the northern suburbs.

River sampling covers 20 areas from the West Midland swimming reserve to East Fremantle swimming reserve.

Lake sampling covers 13 lakes within the metropolitan area.

PUBLIC BUILDINGS

PLAN APPROVAL

The number of plans processed to 30th June 1984 is comparable with that for the previous year.

REGULATIONS

Proposed revised and amended Public Building Regulations have been forwarded to the following for comment:

Principal Architect, Public Works Department
Western Australian Fire Brigade
State Energy Commission
Licencing Court
Chapter of Architects
Association of Consulting Engineers
Department of Local Government

Replies received to date have been considered and further discussions and investigations are indicated.

PUBLIC BUILDING COMMITTEE

A meeting was held on the 3rd February 1984. Main points of discussion were the definition of a public building and healing the hiatus that exists between the Public Building Regulations and the Uniform Building By-Laws.

A further meeting has been arranged for the 25th September 1984.

INSPECTIONS

On-site surveillance continues as always while building work is in progress.

Any situations coming under notice in existing buildings are investigated, usually in association with local authority health officers, and matters rectified.

The Perth City Council has again co-operated with regard to undertaking night inspections of night clubs, entertainment lounges and other public buildings of a similar type. This has resulted in a prosecution of a West Perth premises where exit signs were not being maintained and nominated exit doors were found locked on two consecutive nights.

A further prosecution is pending concerning an entertainment area of a city hotel.

SWIMMING POOLS

Sampling

Regular sampling of pools covered by the Swimming Pool Regulations has been continued by the various local authorities with particular emphasis being given to the detection of amoebae. The results are co-ordinated by this section and the situation monitored.

Regulations

Comments on the proposed amended regulations have been received from the pool industry and the W.A. Institute of Health Surveyors. These were considered and the final draft is presently being submitted for Executive approval prior to forwarding to Crown Law.

Spa Pools

A survey is presently being conducted into the operation of all spa pools available for public use in the metropolitan area. This is taking the form of a questionnaire together with field sampling of spa waters to establish the general condition of pools and the particular areas that would require attention.

The survey has as its ultimate objective the possible promulgation of Spa Pool Regulations.

PRIVATE HOSPITALS

This section has again worked jointly with the "Principal Matrons" section with regard to the control and maintenance of private hospitals.

During this period plans for additions and alterations to four premises have been examined and approved.

Any problems of a building or sanitation nature have been inspected with the inspecting matron and, where necessary, suggestions made or upgrading requested.

WASTE MANAGEMENT SECTION

1. SEPTIC TANK APPROVALS

The number of septic tanks approved were as follows:-

Metropolitan	1,306
Country	1,417
Total	2,723

2. LAND DEVELOPMENT

Advice continues to be provided to the Town Planning Department on subdivisional development where on site disposal systems are to be utilised.

For the first six months of 1984 some 125 assessments were made. Considering that only 87 assessments were made during 1983, this represents a significant increase, and if this trend continues additional staffing will be required to ensure applications are processed within the specified time.

3. LOCAL AUTHORITIES SEWERAGE UNDERTAKINGS

Approval was given for extentions to existing sewerage schemes at Dalwallinu and Dowerin.

4. RUBBISH DISPOSAL - COUNTRY AREAS

New rubbish disposal sites were approved at Boyup Brook, Cranbrook and Dunsborough. An extension to the existing site at Pinjarra was also approved.

Endeavours to improve management at country rubbish disposal sites is proceeding.

5. DISPOSAL OF LIQUID WASTES

The quantities of biodegradable liquid wastes deposited at the three approved disposal sites within the metropolitan region are as follows:-

Site	Nature of Wastes (Megalitres)				TOTAL
	Animal Waste	Bacterial Waste	Vegetable Waste	Vegetable Oils and Tallow	
Canning Vale	1.85	51.36	6.89	0.89	60.99
Newburn	0.08	12.42	0.29	0.05	12.84
Kwinana	0.12	6.88	0.26	0.05	7.31
TOTAL	2.05	70.66	7.44	0.99	81.14

6. LEGISLATION

The working party examining the Bacteriolytic Treatment of Sewage and Disposal of Effluent and Liquid Wastes Regulations has prepared amendments incorporating design and management criteria for on site disposal systems as a long term alternative to sewerage.

REPORT OF THE WASTE DISPOSAL ENGINEER

Solid and liquid waste disposal has not changed significantly on the previous year. Landfill still remains the method of choice in disposing of solid wastes. Several new landfill proposals are under investigation.

While the standard of management at landfill sites has improved, further improvement can be achieved and the Department is taking a much stronger attitude with operators who do not manage their sites in accordance with recognised practices.

On the collection side, several local authorities have introduced the 240 litre cart system. This system is proving highly successful and more and more local authorities will no doubt be changing over to this method of collection.

LIQUID WASTE

The non-biodegradable liquid waste disposal site at Kelvin Road, Orange Grove continues to operate satisfactorily. With the co-operation of the City of Gosnells a small laboratory has been set up at the site to enable preliminary analysis of all wastes brought into the site.

Biodegradable wastes are deposited at three sites in the metropolitan region, Canning Vale, Newburn and Kwinana.

Problems were experienced at the Canning Vale site where the quantity and strength of certain wastes caused an odour nuisance. These wastes have been diverted from the site while improvements are being made to reduce the possibility of a recurrence.

HAZARDOUS WASTES

With the growing concern in the community with the use and disposal of pesticides, this section has become very involved in providing advice and guidance on correct disposal practices.

A management guide on the disposal of asbestos wastes has been prepared and regulations controlling disposal have been drafted and will be introduced in the near future.

WASTE EXCHANGE

The waste exchange continues to operate very successfully with many wastes being recycled, thus eliminating unnecessary disposal.

RESEARCH AND SPECIAL PROJECTS SECTION

CARAVAN PARKS

The survey of all parks has been completed and analysed by computer. Results are at present being tabulated and typed.

At a meeting convened by the then Commissioner of Public Health, on June 11, 1984, it was resolved that the proposed regulations would be submitted after minor alterations, independent of the Local Government Uniform By-Laws. These have been redrafted and are awaiting further comment within this Department.

A draft is being prepared for the proposed legislation of "Recreational Campsites".

ROTTNEST ISLAND

Regular visits have been made to the island in order to keep health related matters under surveillance. Of great assistance in this direction will be completion of the recently announced upgrading programme of the hotel and the island's water supply.

EYRE HIGHWAY

Two inspections have been undertaken in conjunction with the Shire of Dundas health surveyor. Regular inspections with the local authority and other government departments have seen an improved overall standard.

FLY CONTROL CAMPAIGN

The media based fly campaign was again conducted and concluded in April 1984. 24 of 26 metropolitan local authorities participated. An evaluation report of the campaign was submitted to the Metropolitan Fly Control Planning Committee. Areas considered deficient in the campaign have been noted and any future campaign will address these..

The Committee has indicated that the campaign should proceed in 1984/85.

ARBOVIRUS/VECTOR CONTROL ACTIVITIES

The sentinel chicken programme continues to be managed by this section. At present 16 towns are participating in this project.

U.L.V. Fogger Subsidies

The Shire of West Pilbara has been funded to purchase a LECO U.L.V. fogger for use in the townships of Onslow, Tom Price, Paraburdoo and Wittenoom. Five local authorities have now taken the opportunity of this subsidy under N.D.C. funds.

Vector Control Strategy

Two officers have been engaged in this area, with regular field trips to local authorities. Larvae sampling and identification has occurred at several metropolitan local authorities.

MOSQUITO ERADICATION CAMPAIGN

This section has had continual technical input to this Commonwealth programme. The campaign is expected to be concluded in December 1984. As a result of this campaign, substantial amounts of larvae data have been collected, although no actual *Aedes aegypti* were isolated. The co-operation and interchange of information has been most rewarding to all staff concerned.

PEST CONTROL

This section continues to be further involved in pesticides and pest control. The training of the "Designated Officers" is undertaken by this section, and all Government Departments' officers have attended a seminar. Further training with local authority officers is to continue with future seminars.

With the transfer of staff to the pest control centre, the emphasis on pest control and pesticides will focus on this centre.

DISPOSAL OF WASTE FROM MARINE CRAFT REGULATIONS

The Steering Committee has met regularly and progress to date sees the basis of legislative requirements being formulated by submitting a draft to Crown Law for adoption shortly. It is anticipated that this legislation will be implemented by January 1985. Prospective marina developers have been advised of the impending legislation.

EDUCATION

In conjunction with the Health Promotion Unit, two pamphlets, "Facts on Rats" and "Mozzies are Bad News", have been produced and are available for distribution.

FOOD AND NUTRITION SECTION

Substantial progress has been made in a number of important areas during the period January - June 1984.

Of particular importance is the review of the Health Act and the Western Australian Food and Drug Regulations with a view to the adoption of the Model Food Act and the National Health and Medical Research Council Model Food Standards Regulations.

The Food and Drug Advisory Committee has identified those areas where deviation from the Model is required to meet existing requirements in Western Australia. A revised set of Western Australian Food Regulations has been prepared and referred to the Department of Crown Law for subsequent gazettal.

With respect to the review of the Health Act, redrafting of Part VIII concerning foods, drugs, pesticides, therapeutic substances, milk and dairy produce, medicines and disinfectants is at an advanced stage. Separate divisions have been drafted for each commodity. The draft Bill has been examined and returned to the Parliamentary Counsel with further instructions.

It is anticipated that the revised legislation will be ready for presentation to Parliament in the spring session. This will provide a substantial upgrading of food legislation in Western Australia and be in accord with the agreement by Health Ministers to achieve uniform food legislation throughout Australia.

Mercury Contamination - Princess Royal Harbour Albany

Substantial progress has also been made in the period in determining appropriate action with regard to the mercury contamination in Princess Royal Harbour. Surveys had shown that fish, cockles and sediments had markedly elevated levels of mercury. The source of this contamination was traced to low levels of mercury in rock phosphate used in superphosphate manufacture which was subsequently released into the harbour.

The western end of Princess Royal Harbour has now been closed to the taking of all fish, crustacea and molluscs, the effluent pipe is to be removed, fish, cockles and sediments are to be monitored at regular intervals and signs are to be erected warning the public of this closure.

This work has been co-ordinated by a Working Group of senior Departmental officers from the Departments of Fisheries and Wildlife, Environment and Conservation, Government Chemical Laboratories and this Department.

Goat's Milk

A survey of the microbiological status of unpasteurised goat milk has been completed. The collated results have been referred to members of the Dairy Goat Society for comment. These results show that some farms can consistently meet the microbiological standard for unpasteurised goat milk recommended by the N.H. & M.R.C. while other farms have difficulty in meeting the standard.

It is proposed to adopt this standard into the Western Australian Food and Drug Regulations.

Formulation and Review of Food Standards by the N.H. & M.R.C.

The Food & Drug Advisory Committee has provided comments on a number of draft Regulations under consideration by the N.H. & M.R.C. Food Standards Committee. Of particular importance are the standard for reduced salt bread, revised standards for orange juice and related products, margarine, new proposals for dates and upper limits for methanol in wines and spirits.

Assessment of Labels

During the first half of 1984 an exponential increase in the number of draft labels were submitted for assessment in accordance with the Food and Drug Regulations. The applicants vary from National food distributors to small importers and local producers.

Publications Concerning Food & Nutrition

With the intensified consumer interest in foods and food labelling and the policy of preventative public health, the food and nutrition officer has been involved in the preparation of several publications concerning food. These were formulated by the Health Education Unit.

Representation

The food and nutrition officer participated as Departmental/State representative on the following Committees - N.H. & M.R.C. Food Standards Committee, Joint Commonwealth State Working Party on Uniform Food Legislation, Food Technology Association and the Local Health Authorities Analytical Committee.

A number of lectures were also given by the food and nutrition officer in this period. Of particular note was a paper presented concerning the toxicological implications of the use of sweet white lupins for human consumption.

Appendix X

KIMBERLEY HEALTH REGION

R.M. Spargo
Cit (W.A.), J.P. M.B.B.S. M.P.H.
Director

SENIOR STAFF

Director : Dr. R.M. Spargo
Regional Nursing Administrator :
Mrs. P. Humphris
Senior Dental Officer : Mr. W. Evans
Regional Manager : Mr. P. Matison

COMMUNITY MEDICAL OFFICERS

Dr. L. Anderson
Dr. H. Saddler
Dr. N. Wong
Dr. D. Oneill
Dr. A. Penman

KIMBERLEY HEALTH REGION

Aboriginal health status has improved over recent years. This has largely been the result of a decline in the incidence and severity of communicable diseases especially the immunisable diseases of childhood and infantile gastroenteritis, as seen through reduced numbers of children admitted to hospital and especially a lesser severity in the illnesses which require hospital admission. Other infections will continue to recur while poor living conditions prevail. The Aboriginal population in the Kimberley lives in a diversity of circumstances. There remain communities, where there is significant impact upon health from forces coming out of behavioural environmental inter-action. For instance in one community surveyed this year 44% of the population was found to be anaemic, many severely so. This anaemia was a hypochromic microcytic type consequent on infestation with ankylostoma duodenale. The promiscuous defaecation of toddlers around dwellings, was in great part responsible for the transmission of this parasite. With all the ablution facilities in the community non-serviceable there was no incentive for the mothers to control contamination of the soil around the dwellings.

An important task in the future should be to determine how best environmental improvement can be undertaken in the shortest possible time, with the limited resources available. A service infrastructure for all before shelter, shelter for all before funds are used for basket ball courts.

Some communicable diseases are likely to remain with the Aboriginal population for many years. For instance the leprosy endemic will continue in the endemic area in the absence of methodolgy for primary prevention. Yet the triumph in the management of leprosy is not the containment of the attack rate but rather the prevention of nerve damage in leprosy patients. It is possible now for leprosy patients to be discharged without stigmata of leprosy if individual cases are prepared to undergo prolonged supervised treatment. Trachoma is an infection in the Kimberley whose prevalence varies with biological background and ecological setting. Ultimately the prevalence relates very much to a behavioural environmental interaction. The prevalence pool of primary trachoma is being reduced but the triumph of a trachoma programme is that with regular surveillance of high prevalence groups, and the supervised treatment of individual cases there is no prospect of complications from this infection later in life.

Similarly with the sexually transmitted diseases these are part of the social structure that is the Kimberley today. Although the normative goal would be containment of the frequency of the sexually transmitted diseases, it is not reductionistic to view the prevention of congenital syphilis, the prevention of premature death, the prevention of residual disability as the real triumph in the control of the sexually transmitted diseases.

In forecasting about the future, mention should be made about constitutional diseases especially coronary heart disease. The Aboriginal population exhibits a high risk of developing coronary heart disease. They appear templated with a cluster of metabolic characteristics which are associated with susceptibility to obesity and diabetes. These include a mild impairment of glucose tolerance, hyperinsulinaemia and hypetriglyeridemia. Transition has brought with it an array of trigger factors, including a sedentary life style, and excessive energy intake, especially sugar and fat. There are a number of associated risk factors including hypertension and excessive alcohol intake. It is likely that coronary artery disease will become a cause of increasing concern in the future for the Aboriginal population in transition.

Alcohol abuse including drunkeness and the alcohol dependency syndrome is a significant burden, being more serious for the Aboriginal population than for the wider society. This is a major health problem for the Aboriginal population, but the least understood. A problem no one Government Department is prepared to come to grips with. As a consequence, interventions are not sufficiently comprehensive and without sufficient professional input to have an impact.

The necessary study of the problem in its unique behavioural and ecological setting has not yet begun to enable the design of a primary prevention programme.

The dependency of the majority of the Aboriginal population on a welfare system in this remote region will not be readily altered, by initiatives in the political and soci-economic field. Meanwhile problems with an unsympathetic cash economy are having significant impact upon this population, more and more dependent upon the market place for nutritional sustenance. There has been a failure to recognise the significance of this nutritional problem and its implications for the Aboriginal population. A study of the precursors and background factors of the nutritional problems of this group is needed. However, in the meantime it is obvious that serious consideration needs to be given to the nutritional supplementation of particular important groups within the Aboriginal population.

NUTRITION

Poor nutrition is an important health problem in the Kimberley, having significant impact upon certain groups within the Aboriginal population.

For the majority within the Aboriginal population the general plane of nutrition is less than adequate and certain specific nutrients are especially lacking or are in particular short supply.

Fairly extensive information on the nutrient content of the diet of Aboriginal children in the Kimberley has been obtained from two sources during the last few years. Dietary information has come from 24 hour diet recall on all 8, 9 and 10 year old children in six communities and has been converted by a computer programme, that incorporates standard food composition tables into nutrient intakes and nutrient densities.

The second source has been from records of foodstore sales in some of the same communities. Total sales of all foods in a year are converted into estimates of nutrients by the same computer programme and assigned to the resident population in proportion to energy needs. (Corrections need to be made for food coming from other sources.) Here again both nutrient intakes and average nutrient densities can be calculated. Comparison of the two methods of calculating the average nutrient composition of the diet has shown good agreement and so nutrient densities can be calculated with some confidence.

The analysis shows that the average diet of both adults and children, while containing adequate amounts of protein, appears to be deficient in vitamin A, folic acid and calcium and to contain marginally low amounts of zinc, iron and vitamin B_6. Chemical analysis of plasma shows a low level of vitamin A and iron and, of course, of zinc, but plasma status of the other nutrients has not been measured. The deficits identified in this way are those that might be expected from a diet based predominantly on flour and meat and with a high content of refined sugar, but containing little in the way of fresh vegetables and virtually no fresh dairy products. Impaired growth of Aboriginal children exists in all Aboriginal settlements in the Kimberley that have been studied. (Smith et al., Proc. Nut. Soc. Aust. 7, 37-44, 1982).

In a recent cross-sectional Anthropometric Survey, 128 children up to 5 years of age were examined. More than 20% of the infants and toddlers examined in this study were malnourished, three individuals were severely malnourished. Interestingly all infants examined except one, were well nourished in the first 12 months of life.

Three hundred and eighty eight (388) females not known to be pregnant and of child bearing age (14-42 years) were examined.

TABLE 1

BODY MASS INDEX (wt/ht^2) CENTILES OF ABORIGINAL FEMALES

KIMBERLEY

AGE	N	10th Centile	50th Centile	90 Centile
15-19	115	15.5	18.7	27.4
20-24	94	15.8	21.0	29.8
25-29	65	16.8	22.7	30.3
30-34	34	17.7	26.6	34.6

TABLE 2

PERCENTAGE DISTRIBUTION OF ABORIGINAL FEMALES BY AGE AND BODY MASS INDEX (wt/ht^2)

KIMBERLEY

B M I	AGE			
	15-19	20-24	25-29	30-34
15	6	6	1	0
15.1-17.7	30	18	14	7
17.6-20.0	25	15	14	9
20.1-25.0	22	35	37	30
25.1-27.5	7	13	11	12
27.6-30.0	7	4	11	12
30	3	9	12	30

Less than 60% of the females of child-bearing age were normally nourished, one-sixth were undernourished and one-quarter were obese, mostly older women. While the height distribution of these women is not significantly different from normal reference values, their Body Mass Index (BMI) Table 1 (weight/height^2) with a median value of 18.7 in the 15-19 years age group rising to 26.6 in the 30-34 years age group. The increase in the 50th centile of BMI in these Aboriginal women (7.9kg/m^2) is almost 5 times that of reported normal values over this age range. The percentage distribution by age and BMI are shown in Table 2. These Aboriginal women are suffering very considerable nutritional stresses during their active reproductive period.

This seems confirmed by a recent study of Aboriginal women in the Kimberley which showed that levels of lactoferrin in breast milk were depressed in those whose weight-for-height measurements were below 90% W.F.H. Lactoferrin is an iron-binding protein with antibacterial activity. Its relative paucity in undernourished Aboriginal mothers suggest that their infants are disadvantaged by having less of this natural protective factor against bacterial infection in their mothers milk. See Table 3.

TABLE 3

LACTOFERRIN CONCENTRATION IN BREAST MILK IN RELATION TO MATERNAL RACE AND DURATION OF LACTATION

% Weight For Height	LACTOFERRIN CONCENTRATION (mg/ml)			
	≤15 Days PP[1]		>15 Days PP	
	Caucasian	Aboriginal	Caucasian	Aboriginal
≥90	2.82(0.24)[2] n = 12	3.49(0.24) n = 15	1.42(0.16) n = 16	1.23(0.23) n = 8
<90		2.89(0.27) n = 6	0.66(0.14) n = 6	0.87(0.18) n = 16

[1] PP = Post Partum

[2] SEM in brackets

Work in the Kimberley in the early seventies on Aboriginal infants and children ranging from infancy to late adolescence revealed a reduction in cell mass for body length. The reason for the reduction of cell mass relative to length (less meat on the bones) was thought to be due to reduced protein intake but simultaneously a reduction in plasma zinc concentration was revealed. This lead to work being carried out in a number of communities in the Kimberley over succeeding years. The results of this work may be summarised as follows:

1. The zinc and iron status of the plasma of the children is very significantly reduced in comparison with caucasian reference children.

2. Hair zinc levels remained low in confirmation of results obtained in 1981.

3. Dietary data obtained by 24-hour recall of children and from foodstore records of two entire communities indicate the average diet to be marginally deficient in zinc, iron and copper and of questionable adequacy in relation to some other nutrients, but to contain more than adequate levels of protein.

4. Serum Vitamin A measurements in a sample of the children indicated a high percentage of unacceptably low levels of < 30 ng/dL.

5. Plasma ablumin levels show one child in four with low plasma albumin (<35 g/L.)

6. Low urinary zinc has been confirmed.

7. Impaired production of the precursors of the sex hormones has been demonstrated.

8. Recent work has investigated the blood cells as indices of zinc status and work with white blood cells and red cells would have us believe that neutrophil zinc content is a reliable indication of zinc deficiency.

Clearly in a vast area of the Kimberley there is presumptive evidence of a significant zinc deficiency problem in the Aboriginal school age population.

Currently a double blind pair matched study is in progress in a number of discrete communities in the Kimberley.

All these indicators of poor nutrition are disturbing. This is particularly so because the problems of nutrition in the Aboriginal population has been given intense attention over the past decade and various strategies have been instituted to overcome the problem. Questions must now be raised about the root causes for these continuing problems in remote Aboriginal communities.

Social Security payments have provided financial aid for disadvantaged individuals, which include most Kimberley Aborigines, to help support themselves and their families. Even in remote Kimberley communities there is now access to a range of store foods in townships and communities although the range is often very limited, nutritionally suspect, expensive and store management is often inefficient. Shortages of fresh foods occur intermittently, particularly in the summer "wet" season. Other less obvious but powerful factors must be taken into consideration. Along with the welfare society, remote Aborigines have been rapidly forced into an unfamiliar, unsympathetic cash society. Their traditional practice of immediate consumption (of food, other consumer goods or welfare cheques), compounded by the communal habit of reciprocity, or sharing, has given their fortnightly cheques little meaning in the wider society they now find themselves in. Their rapid, forced transition into this wider society has brought other pressures; these include new obligatory costs, such as housing and electricity charges. Furthermore, costs for essential goods and services in remote areas are considerably higher than in other parts of Australia yet Social Security payments are not indexed according to these regional differences. Only in May this year were these regional cost differences partly recognised with the payment of a Remote Area Allowance to Social Security Benefit recipients living above the 26th parallel. Budgeting and planning for food purchases, storage and preparation present an unfamiliar set of problems, particularly where facilities for food storage (eg. refrigeration) and cooking are virtually non-existent. Under those circumstances the temptation to buy "fast" or "take-away" foods often means that ready cash or cheques are spent on nutritionally inadequate and expensive items. All this, of course, is compounded by the social, economic and physical problems that are related to heavy alcohol consumption which is very widespread in the Kimberley.

SEXUALLY TRANSMITTED DISEASES

The Regional Venereal Disease Co-ordinating Committee has continued to meet quarterly at different centres within the region. Where possible parallel meetings are held in adjacent Aboriginal communities. The meetings have been attended by a wide range of interested persons and when held in discrete Aboriginal communities the receptive attendance has been notable.

Meetings continue to be chaired by Mr. John Edwards. Dr. M. Gollow the Director of the Venereal Disease Control Branch, has attended each meeting and has been an important resource person to the region, carrying out on-going educational programmes for health providers and making himself available to medical officers for consultation, whilst contributing to the planning of control functions in relation to the sexually transmitted diseases.

Of all methods available in the control of the sexually transmitted diseases, it is by raising provider and community awareness and education, and the development of individual responsibility that has the greatest potential for reducing the frequency of these diseases and their residual disability. We are heartened by the increase in notification which is in part the result of active case detection and in part the result of patients more readily coming forward for treatment.

Table 4 shows the notifications of sexually transmitted diseases in the Kimberley by age group and categories of disease whilst Table 5 shows the notifications of the sexually transmitted diseases by categories of disease and local authority area.

TABLE 4

NOTIFICATIONS SEXUALLY TRANSMITTED DISEASE

BY AGE GROUP AND CATEGORIES OF DISEASE

AGE GROUPS	GONORRHOEA	SYPHILIS	OTHER	ROW TOTAL
0-14	5			5
15-19	57	5	4	66
20-24	63	8	4	75
25-29	24	4	2	30
30-34	23	2	4	29
35-39	9	2	2	13
40-44	9	2		11
45-49	6	2		8
50-54	2			2
55-59	1			1
60-64	4			4
TOTAL	203	25	16	244

Here the male/female notification ratio was 2:1

TABLE 5

NOTIFICATIONS SEXUALLY TRANSMITTED DISEASES
BY CATEGORIES OF DISEASE AND LOCAL GOVERNMENT AREA
TO 30TH JUNE, 1984

	BROOME	HALLS CREEK	WEST KIMBERLEY	WYNDHAM EAST KIMBERLEY
Gonorrhoea	25	67	66	45
Granuloma		12	4	
Chancroid				
Primary Syphilis	1	2	1	2
Secondary Syphilis		4	8	
Early Latent Syphilis	3	5	3	
TOTAL	29	90	82	47

LEPROSY

The major impediment in the control of leprosy, is the non-availability of an effective and practical method for the protection of susceptible individuals exposed to M. Leprae.

The development of an effective vaccine, would place leprosy control on a firm footing, indeed a vaccine has the potential to eradicate leprosy completely. However it will be some years before information regarding the efficacy of the vaccines currently being tested, can be established.

TABLE 6

CATEGORIES OF ADMISSION		1964 - 1973	1974 - 1983
LEPROMATOUS	New	60	48
	Relapsed	96	22
	TOTAL	156	70
TUBERCULOID		105	36
COMPLICATIONS SECONDARY TO LEPROSY		142	140

Admissions to the Leprosarium for two 10 year periods (1964-1973) and (1974-1983) compared.

From Table 6 it can be seen that there has been a marked fall in the total number of new Tuberculoid cases admitted to the Leprosarium, from 105 in (1964-1973) to 36 in (1974-1983). This may in part be due to some cross-protection afforded individuals consequent upon the neonatal B.C.G. programme, which has been ongoing since 1967 in the Kimberley.

The fall in the total number of lepromatous cases admitted to the Leprosarium from 156 in (1964-1973) to 70 in (1974-1983) is mostly due to the containment of relapse in lepromatous leprosy.

TABLE 7

LEPROSARIUM

	Discharge Patient Numbers	Percent Relapsed After 5 Years	Percent Relapsed After 10 Years
1952 - 1953	52	25.00	42.31 (Discharged with no treatment)
1962 - 1963	26	26.92	38.46 (Unsupervised treatment)
1972 - 1973	36	5.56	5.56 (Supervised treatment)

Percentage of relapse in (2 year) cohorts of discharged multi-bacillary patients after 5 years and 10 years.

From Table 7 can be seen the reduction in the number of relapsed lepromatous cases as compliance with maintenance outpatient drug regimes is improved. The most important control function is containing the attack rate in leprosy, by lessening the opportunity for infection through reducing the number of infective foci occurring within the community. Obviously we do not have control over new cases of leprosy occurring in the community, however we can control the occurrence of relapse, which will indirectly reduce the frequency of new cases in the community. Control of relapse is through a combination of prolonged, supervised, combined therapeutic regimes and the decision to remove responsibility for outpatient treatment from the patient and place it with the health team. This of course assumes the availability of intermittent and depot leprostatic drugs and a community based health care team.

There are a number of factors in leprosy which make control difficult. It is now widely accepted that airborne spread is an important method in the transmission of leprosy. This has important public health implications in terms of the numbers of individuals who might be infected from a single infective index case.

We now know that M leprae can remain viable, outside the human host for at least 10 days. This might be important in transmission in the Aboriginal population, given the health behaviour of this group. The concept of the human leprosy carrier, the individual who has M leprae in his nasal mucosa and skin yet who does not get clinical disease, presents a new problem that needs elucidation.

There is strong presumptive evidence in recent literature, that the incidence and prevalence of M leprae infection far exceeds clinical leprosy in endemic areas.

The long incubation period in leprosy is a confounding problem, not only in forcasting about the endemic, but in efforts at control. In 1983 three siblings were admitted to the Leprosarium with lepromatous leprosy, who were infected in 1968. A recent analysis of the estimated incubation period, (source of infection data), for multibacillary patients admitted to the Leprosarium over the last five years, gave an average incubation period of 12.6 years with a range of 5-22 years. Control is complicated further in that each one of these patients incubating M leprae, will become an infective foci ensuring widespread transmission before detection of clinical disease.

The Kimberley has long been part of an endemic area which is confluent across northern Australia. This endemic area is spreading southwards.

In the absence of a vaccine, leprosy will continue in the endemic area so long as there are individuals who are susceptible to infection by M leprae.

The Aboriginal population has a high frequency of susceptible individuals. During the last decade there have been demographic and social forces at work in the Aboriginal population that may quite reasonably be expected to facilitate the transmission of leprosy.

There were no new cases of leprosy admitted to the Leprosarium for the period January 1st to June 30th.

Details of the leprosy register for the Kimberley are to be found in Table 8.

TABLE 8

DETAILS OF LEPROSY REGISTER

KIMBERLEY, JUNE 30, 1984

On Treatment	220
Surveillance only	196
Lost to Surveillance	13
Out of Region	30
	459

DEATHS : 7 Registered patients have died since 30 December, 1983.

Northern Territory patients being managed in Kimberley 19.

TABLE 9

LEPROSARIUM PATIENT CATEGORIES BY SEX

CATEGORY	Male	Female	Total
Patients as at 1st January, 1984	14	6	20
ADMISSIONS			
New (Multibacillary)	-	-	-
New (Paucibacillary)	-	-	-
Bacillary Relapse	-	-	-
Disability	8	2	10
Kimberley Origin	8	2	10
Other than Kimberley Origin	-	-	-
Aboriginal Descent	8	2	10
DISCHARGES	11	2	13
Patients as at 30th June, 1984	11	6	17
Multibacillary	6	2	8
Paucibacillary	-	-	-
Disabilities	2	1	3
Social Placement	3	3	6
Kimberley Origin	10	6	16
Other than Kimberley Origin	1	-	1
Aboriginal Descent	10	6	16
Non Aboriginal Descent	1	-	1

TABLE 10

DERBY LEPROSARIUM

ADMISSIONS AND DISCHARGES 1ST JANUARY - 30TH JUNE, 1984

MONTH	ADMISSIONS							DISCHARGES									Inmates remaining in Leprosy		Total Male & Female
	MALE			FEMALE			Total Male & Female	MALE				FEMALE				Total Male & Female			
	Ad-mitted	Re-ad mitted	Total	Ad-mitted	Re-ad mitted	Total		Dis-charged	De-ceased	Ab-sconded	Total	Dis-charged	De-ceased	Ab-sconded	Total		Male	Female	
JAN.		2	2				2	4			4	1			1	5	12	5	17
FEB.		2	2				2										14	5	19
MARCH								4			4					4	10	5	15
APRIL		2	2		1	1	3										12	6	18
MAY								2			2	1			1	3	10	5	15
JUNE		2	2		1	1	3	1			1					1	11	6	17
TOTAL		8	8		2	2	10	11			11	2			2	13			

Tables 9 and 10 show details of patients at the Leprosarium for the period January 1st to June 30th 1984.

PUBLIC HEALTH INSPECTION

Integration of the Public Health Inspector's discipline into the general public health functions and activities within the region has proven mutually satisfying.

The two officers based in the Kimberley have significantly heavy workloads generated by their responsibilities each to two local authorities within the region. Their work progressively increases with the development of towns within the region and special projects (e.g. local abattoirs).

Of special importance has been the development of numerous discrete Aboriginal communities throughout the region.

The service infrastructure of these and their maintenance capacity are at varying levels of development. Significant public health inputs are required in these situations.

It is patently obvious that the existing establishment of health inspectors is unable to deal with the work generated by these Aboriginal communities. Certainly they are unable to contribute in a meaningful way to the information needs of such communities. It is obvious that one or more additional officers will need to be appointed, who are able to concentrate upon the needs of discrete Aboriginal communities.

At short notice towards the end of 1983 funding for an Environmental Health Assistants Programme was made available under the Commonwealth Wage Pause Programme. This programme did suffer from the haste with which it had to be finally implemented. Because recruits to the programme had to be taken from the ranks of the unemployed there was great variability in terms of reliability and work ethic.

The necessary contribution from Field Nurses was not always forthcoming, perhaps because of existing workload, perhaps because of a common value system that inhibits innovation. More likely, in seeing the secondment of public health inspectors for this purpose they did not see the need to energise the programme.

Supervision and support from the public health inspectors was thinly spread because of the numerous communities respondent to the programme.

Nevertheless, the programme was a success and in particular communities, highly so. Certainly an awareness of the need for environmental improvement was achieved. In some communities tangible improvement of the environment was managed. A momentum for such effort was generated and it is unfortunate that this will now lapse.

Similarly the Mosquito Eradication Campaign, a Commonwealth funded programme aimed at the eradication of Aedes Egypti saw significant environmental change largely achieved and organized by Aboriginals. That the need was seen to extend this activity also to the discrete Aboriginal communities throughout the region was commendable.

ALCOHOL AND ALCOHOL RELATED PROBLEMS

Encouragement and support continues to those community based groups who would assist persons with alcohol related problems. Groups are now active at Broome and Derby. A committee "Ngnowar-Aerway" has been formed this year to set up such a group in Wyndham. Currently there is no formal rehabilitation programme in the Kimberley. The prerequisite for a regional rehabilitation effort, are optimally functioning maintenance phase systems in each of the major towns in the Kimberley. These maintenance phase systems should act as a portal of entry for the victims of alcohol into the rehabilitation phase and give the necessary support to such persons on their return to the community.

It is obvious that greater professional input has to be given to alcohol programmes in the Kimberley. Such input should be focussed on the rehabilitation phase, which needs to be centralized in such a way that maintenance phase groups may relate and benefit from the spillover of professional input.

Increasingly there will be a demand for alcohol rehabilitation. The provision of such a service will meet a real need, if only in restoring victims temporarily, especially where the victim or others at his family, or community system level are about to collapse under the strain of the victims illness.

This should not divert attention from a more important and basic need for a properly researched and designed primary prevention programme for the Aboriginal population so burdened from the impact of alcohol.

REGIONAL HEALTH EDUCATION OFFICER

In May an officer was appointed for the Kimberley to be based in Derby; appointed by the Anti-smoking Trust of the Health Promotions Branch of the Public Health Department, this officer will act to achieve publicity for the Quit "Take a Fresh Breath of Life", Campaign. Later other health professional activities will be taken up.

DENTAL HEALTH

During the last several years effort has been made in discrete Aboriginal communities to increase the utilisation of dental services by Aboriginals. This is slowly being achieved through the regularising of itinerant visits and where possible facilitating a visible dental infrastructure within the community and encouraging attendance of the adult population. The object has been to alter attitude in regard to dental health behaviour, through a regional wide supervised tooth brushing at the school level, by reducing problems of access to dental services by the Aboriginal population, and by encouraging utilisation through the promulgation of information in regard to dental health.

It is recognised that the Aboriginal population has a high frequency of periodontal disease through poor oral hygiene, the altered diet of transition and the low expectation in regard to dental health status with a limited range of options to achieve altered status in the past. There is in addition almost certainly a spillover of complications impacting upon general health from this poor oral status. For many of the reasons mentioned above, there is also in a high frequency missing or useless teeth, in part the result of periodontal disease, in part the result of caries in a population which as children did not have the benefits of school dental therapists or later access to restorative services.

It is not enough to just minimise problems of access. For the Aboriginal population there is a need to actively encourage and facilitate attendance at dental clinics.

For the Aboriginal population in the major towns within the region, efforts to increase utilisation are more difficult in that there is the competition with the wider society for access to a dental officer where the use of an appointment system is a significant barrier to access for an Aboriginal.

Where private - practice dental clinics exist access is limited to the indigent because of eligibility and dental subsidy shortfall problems.

PUBLICATIONS

1. Donald B. Cheek, Halford J. Hay, Liliana Lattanzio Dietman Ness, Neil Ludwigsen, Randolph Spargo : Zinc Content of Red and White Blood Cells in Aboriginal Children. Aust. N.Z. J. Med 1984 : 14

2. J.C. Brand, I Darnton-Hill, M. Gracey & R.M. Spargo : Lactose Malabsorption in Australian Aboriginal Children American Journal of Clinical Nutrition (In Press).

3. M. Houghton, Gracey M., Burke V., Bottrell C., Spargo R.M. : Breast Milk Lactoferrin Levels in Relation to Maternal Nutritional Status.

   Journal of Paediatric Gastroenterology and Nutrition (Raven Press New York) - in press

4. Gracey M., Spargo R.M., Bottrell C., Hammon K., Mulholland K., Valentine J. : Maternal and Childhood Nutrition in Aborigines of the Kimberley Region. Medical Journal of Australia (submitted)

5. Kerin O'Dea : Marked Improvement in Carbohydrate and Lipid Metabolism in Diabetic Australian Aborigines after Temporary Reversion to Traditional Lifestyle. Diabetes Vol. 33 June 1984.

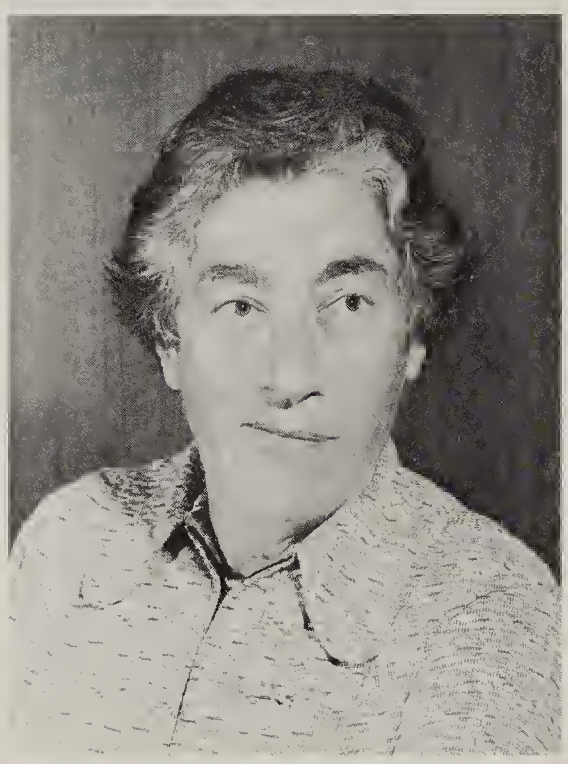
6. Donald B. Cheek, Judith Wishart, George Philipon, John Field and Randolph Spargo. : Zinc Status Body Composition and Maturation in Aboriginal Boys. Swiss Medical Research Foundation 8th Workshop, Munich Jan. 15-19, 1984.

IMMUNISATION

In general most of the childhood diseases for which vaccines are available are now under control in the Aboriginal population of the Kimberley. This has been achieved through an active immunisation programme, and no additional gains in health can be expected from this strategy. The continued protection of the Aboriginal population however, is very much dependent upon continuation of the immunisation programme on an active basis as there is a significant threat, from intermittent reservoirs in the wider society in the Kimberley.

Appendix XI

NURSING ADMINISTRATION SECTION

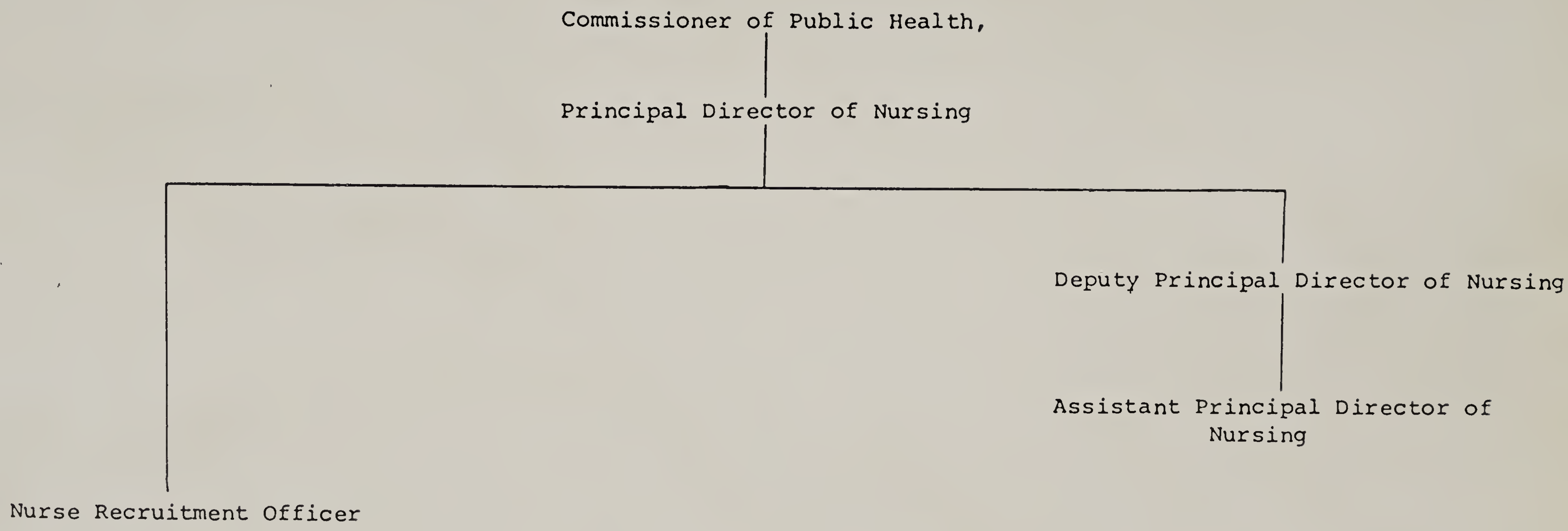


Miss E.L. Bohan,
I.S.O., F.C.N.A., D.N.A.,
Principal Director of Nursing

SENIOR STAFF

Principal Director of Nursing
: Miss E.L. Bohan
Deputy Principal Director of Nursing : Miss C.J. MacDonald
Acting Assistant Director of Nursing : Miss M. Bray
Nurse Recruitment Officer
: Mrs. G. Clark

NURSING ADMINISTRATION SECTION - ORGANIZATION CHART


Commissioner of Public Health,
Principal Director of Nursing
Deputy Principal Director of Nursing
Assistant Principal Director of Nursing
Nurse Recruitment Officer

NURSING ADMINISTRATION SECTION

NURSING SECTION

1. Private Hospitals Regulations 1970 (Health Act)

The supervision of these Regulations requires routine inspections of 107 nursing homes and 19 general hospitals, which are sited mainly in the metropolitan area, and to a lesser extent in Albany, Bunbury, Geraldton, Kalgoorlie and Narrogin.

Attention is given to general environmental and catering standards including safety, as well as the actual nursing care of the patient. In addition complaints which are telephoned or written, require separate investigation, entailing one or more visits, sometimes at odd hours, eg. 3.30-5.30 a.m. and in the evening to check on unacceptable practices.

Effective and co-operative support as necessary has been given by Health Surveyors, the Dietitian, and by a Senior Nursing Officer, Community Health Services.

1.1 Inspections

Nursing Homes:	65	
General Hospitals	6	71

1.2 Investigation of Complaints

Nursing Homes	15	
General Hospitals	1	16

1.3 Upgrading of Existing Nursing Homes/Hospitals

Glendalough (Little Sisters of the Poor) has replaced old accommodation with a new building of 40 beds.

Work uncompleted but currently in progress at Kaleeya, (General) Hospital, Bicton, Marshall Park Nursing Home, Midland Convalescent Nursing Home, Wearne House (Nursing Home), Mandurah.

1.4 12 sets of plans examined and advice given involving meetings with principals, architects of the several projects.

1.5 Revision of the Regulations has been taken a stage further towards completion.

2. Midwifery Nurses' Regulations (Health Act)

There were 43 home births notified, all of which involved follow-up visits and reports.

There are at present nine Registered Midwifery Nurses in domiciliary practice.

Appendix XII

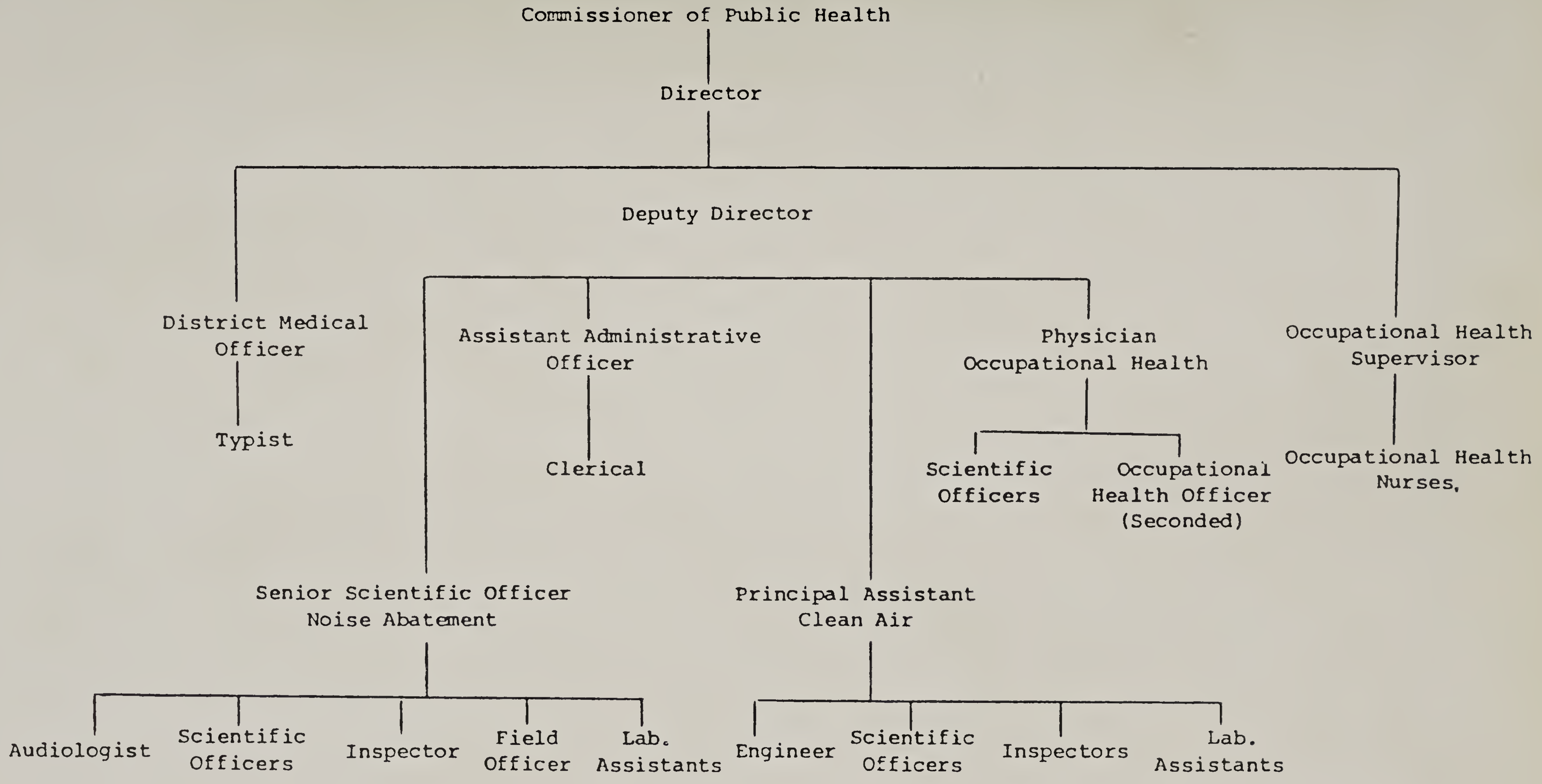
OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

F. Heyworth
M.B., Ch.B., L.M.S.S.A. (Lond),
M.R.C.P., F.R.A.C.P., D.I.H. (Apoth),
D.I.H., (Conjoint) F.A.C.O.M.

SENIOR STAFF

Director : Dr. F. Heyworth
Deputy Director :
Dr. P. Psaila-Savona
Principal Assistant, Clean Air :
Mr. R. Powell
District Medical Officer :
Dr. R. Gillett
Physician, Occupational Health :
Dr. K. Wan
Principal Nurse - Occupational Health Nursing :
Sr. K. Howell
Senior Scientific Officer, Noise Abatement: Dr. P. Wilkins
Senior Scientific Officer, Occupational Hygiene :
Mr. G. Taylor
Assistant Administrative Officer :
Mr. T. Arnautovic

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT - ORGANIZATION CHART


Commissioner of Public Health
Director
Deputy Director
District Medical Officer
Typist
Assistant Administrative Officer
Clerical
Physician Occupational Health
Scientific Officers
Occupational Health Officer (Seconded)
Occupational Health Supervisor
Occupational Health Nurses.
Senior Scientific Officer Noise Abatement
Audiologist
Scientific Officers
Inspector
Field Officer
Lab. Assistants
Principal Assistant Clean Air
Engineer
Scientific Officers
Inspectors
Lab. Assistants

OCCUPATIONAL HEALTH, CLEAN AIR AND NOISE ABATEMENT BRANCH

GENERAL

It is with pride that I record the twenty-fifth anniversary of the establishment of occupational health as a recognizable practice in this State. It is not a lack of gratitude and respect that stops me from paying tribute to all those who, over these years, have contributed to the evolution of this Branch but an obvious need to be brief. However, it would be intolerable not to, at least, give special mention to pioneers like Dr. Letham, Dr. McNulty, Mr. Moyle, Miss Wilkinson and Dr. Macey. To them, we owe the development of a Branch which efficiently and effectively handles a large number of occupational health, noise and air pollution problems which otherwise might have gone unattended.

Coincidentally and ironically, the twenty-fifth anniversary may see a fragmentation of this Branch with bids being made by the Department of Conservation and Environment, the proposed Commission on Occupational Health, Safety and Welfare and the Health Department for parts of the services. Over the past six months, concern has been expressed by many members of staff at the lack of information passed on to them. The anticipated changes had been referred to in last year's annual report. However, this Branch too must move with the times and it is hoped that any change that may occur will see the interests of the community in general better served.

This report covers the first six months of 1984. The establishment of the Health Department of Western Australia requires this. The opportunity is taken to wish the new department a successful future.

In an effort to improve the efficiency of the Branch, a policy document has been written, objectives have been revised, a strategy towards achieving these objectives implemented and it is expected that a continuing audit will measure our successes or failures.

The Hearing Conservation in Workplaces Regulations under the Noise Abatement Act which had been proclaimed last year continue to receive great attention. A real effort is being made by departmental officers to bring these regulations to the notice of relevant organizations and employee groups so that they can respond efficiently when the regulations come into force on 21st October 1984.

An important step in controlling the use of pesticides has been the development of a new stringent two tier system of licensing pest control operators. New moves to license all commercial broad-hectare sprayers were initiated.

Concern over the handling of asbestos remains, and help has been extended to the Department of Industrial Affairs to update and upgrade its regulation.

The acceptance of the value of ergonomic principles has been instrumental in minimizing the potential epidemic of health problems associated with visual display units.

The development of the Karratha Occupational Health Unit as the first satellite unit has been hampered by the resignation of its first scientific officer. Urgent steps are being taken to fill this vacancy.

As in previous years, the Clean Air Section has dealt with many requests for help from the community at large. It is with satisfaction that one can report that compared to other countries, Western Australia has no air pollution problem of note.

Help has been extended to the Department of the North West in its dealings to resolve the Wittenoom problem. To date, it seems that the people at the townsite cannot accept that a health hazard exists in spite of repeated expert advice from departmental officers. A satisfactory "clean up" of the town is not considered to be feasible or practicable. Particular concern is felt for the health of children and young persons living there.

OCCUPATIONAL HEALTH SECTION

Medical Examination of Miners and Workers in Dusty Trades

In accordance with practice in previous years, radiological surveys have been conducted in co-operation with the Perth Chest Clinic.

As required by the Mines Regulation Act, 1964-74, 2173 men who entered the mining industry during 1984 (January - June) were examined and, as required by the Mine Workers' Relief Act, 1932-40, 1834 miners were re-examined.

In the examination under the Mine Workers' Relief Act, 32 miners were found to be suffering from silicosis, and one from silico-asbestosis. There were no cases of asbestosis. Five of the silicosis cases were new, as was the case of silico-asbestosis.

There were no newly diagnosed cases of tuberculosis in miners.

FIGURE 1

Year	Total No. of examinations	Cases of Silicosis	Incidence of new cases of Silicosis	Rate per 10,000 examinations (Silicosis)
1925-29	13,800	-	847	614
1930-34	19,600	-	380	194
1935-39	34,100	-	111	33
1940-44	29,000	-	238	82
1945-49	26,000	-	293	113
1950-54	29,400	-	274	93
1955-59	30,200	-	259	85
1960-64	36,377	-	409	112
1965-69	36,477	-	196	53
1970-74	24,122	1,704	119	49
1975	8,696	302	35	40
1976	5,788	291	20	35
1977	7,414	242	18	24
1978	3,789	197	17	44
1979	3,712	197	10	27
1980	4,927	148	1	2
1981	3,781	115	5	13
1982	1,182	84	3	25
1983	4,077	119	3	7
1984 (Jan-June)	1,834	32	5	27

REGISTERS

Year of Diagnosis	Mesothelioma	Asbestosis	Silicosis
Unknown	10	78	-
Pre 1974	18		-
1974	4		-
1975	9		-
1976	6		-
1977	9		-
1978	13	11	30
1979	7	9	26
1980	18	16	17
1981	18	8	18
1982	23	11	6
1983	20	14	8
1984 (Jan-June)	7	8	6
TOTAL	162	155	111

Seventy-two cases of mesothelioma are known to have been associated with blue asbestos at Wittenoom.

Although the Cancer Registry is by statute responsible for the registration of mesothelioma cases, the Occupational Health Branch continues to keep a record of all mesothelioma cases. While the Registry only registers cases which have been diagnosed in Western Australia, this Branch keeps in addition, a record of all those cases diagnosed in other States and overseas which may have had some connection with Western Australia by virtue of exposure to asbestos at Wittenoom.

Other Medical Examinations

Medical examinations have been conducted on workers exposed to isocyanates, paints, lead, mercury, pesticides and other occupational hazards. Under the Workers' Compensation and Assistance Act, Occupational Health Physicians have regularly represented this Branch on the Pneumoconiosis Medical Panel to assess claims for disability due to dust diseases.

Other Activities

Lectures on heat and cold, chemical poisoning, occupational cancer and occupational infectious diseases were given to students at the W.A. Institute of Technology, while lectures on occupational health and zoonoses were given to the veterinary medical students. Throughout the year, medical officers continued to lend support to the St. John Ambulance Occupational First Aid Course, the Health Education Unit Pesticides Seminars (e.g. Busselton, Harvey), the Agriculture Department and the Trade Union Training Authority training programmes by providing lectures on a regular basis.

Branch physicians continue to represent the Department on the Occupational Health Committee of the National Health and Medical Research Council. In addition, the Branch is represented by a physician on a number of Departmental and Inter-Departmental Committees and/or Working Parties. These include the Medical Advisory Committee (Radiological Council), the Poisons Advisory Committee, the Medical Advisory Committee on Road Traffic Injuries, the Mesothelioma Committee, Wet Abrasive Blasting Cleaning using sand abrasive Working Party, Solvent Abuse Working Party and Asbestos Regulations Working Party.

DISTRICT MEDICAL OFFICE

Attendance at Police Department Surgery and the Fremantle Surgery between January 1st and June 30th, 1984 totalled 2465.

Other figures are:

Pre-Employment Medicals	120
Eyesight Tests	31
Promotion/Driving Medicals	67
Driving Instructors Medicals	4
Licence Medicals (applications for renewal of special licences)	5
Other (Administration etc.)	20

Attendance at court as a result of appeals on medical decisions relating to refusal of licence continued as in past years.

Assessment of Fitness to Drive

Due to continued growth of drink related offences, medical assessments have increased. For the six month period 2307 medical assessments have been undertaken.

The processing of medical assessments due to alcohol related driving offences is becoming increasingly difficult. Concern is expressed that the form is not meeting the principal objective, that is, to certify that a person is addicted to alcohol and/or drugs.

ABATTOIR OCCUPATIONAL HEALTH

An occupational health physician provides consultant service to the Western Australian Meat Commission, Robb Jetty Abattoir, in the operation of its inplant medical facility run by a full-time nursing sister.

Since 1981 the Occupational Health Branch has continued to provide a consulting service to the Meat Commission whereas in 1980 an occupational health physician from the Branch was providing an on-site service.

Year	Attendances	Injuries	Lost Time Accidents	Workers' Compensation	% on Workers' Comp.
1979	12,658	2,981	390	421	14
1980	16,033	3,828	216	412	10.8
1981	12,654	4,075	303	343	8.4
1982	12,191	4,357	230	281	6.5
1983	11,632	3,760	192	241	6.4
1984 (till 30th June)	4,011	1,267	52	72	5.7

The percentage on workers' compensation is 5.7 which shows a reduction of 0.7 percent when compared with the previous year. In the second quarter, workers on workers compensation fell to 3% and the trend of improving safety performance since 1979 is reflected in the winning of the Industrial Foundation for Accident Prevention Award for reduction of loss time injuries by more than 20% for the period 1/8/83 to 1/2/84 and pennants for 7 units (departments) for improved safety record.

OCCUPATIONAL HYGIENE SUB-SECTION

The sub-section is staffed by three scientific officers. A health surveyor was also on loan to the sub-section until June 30. Some pressure has been removed with the transfer of responsibility for commercial pesticide operations to Health Inspection Branch at Graylands from June 30.

Pesticides

Officers lectured to technical college students, designated officer seminars, other departments, green keepers and rural seminars, spoke at public meetings, assisted in commercial licensing and registration examinations and liaised with industry associations.

Staff played a leading role in developing a new stringent two-tier licensing system, and assisted in developing the public awareness seminars.

A large number of telephone calls and letters from the public were answered. Prosecutions under the Pesticides Regulations were launched. New moves to license all commercial broad-hectare sprayers were initiated. Changes to Regulations were proposed, including a proposal to make the public aware of spraying in public areas.

A definite growth in fumigation has been noticed, Discussions on a proposed study of pesticide effects on native fauna were attended.

Educational Activities (Other than in Pesticides)

Telephone, mail and on-the-job advice to industrial management, workers and the public was given. Lectures on asbestos to industry and government and on occupational hygiene to trade unionists also were given. Staff were active on the Committee of the Occupational Health Society.

Consultation and Review (Other than in Pesticides)

A heavy increase in committee work as a result of new government initiatives was experienced.

Staff provided the secretariat for the interdepartmental Committee to Co-ordinate Action on the Use of Asbestos, were on the Essential and Non-Essential Uses of Asbestos Sub-Committee of that Committee, served on the Western Australian Advisory Committee on Chemicals and the toxic Substances Legislative Sub-Committee of that Committee, commented on Poisons and Pesticides Advisory Committee matters, served on the Transport of dangerous Goods Committee, participated in proposed Department of Industrial Affairs regulations on asbestos, toxic substances, spraypainting and benzene, commented on NHMRC Occupational Health Committee matters and participated in the NHMRC Occupational Hygiene Sub-Committee.

A review of biological limit values for absorbed industrial substances and a guide to man-made mineral fibres were prepared for the NHMRC. Interest in the Occupational Safety and Health Steering Committee was maintained. Review of standards association documents continued.

Working Environment

Workplace surveys on contaminants ventilation were conducted jointly with Department of Industrial Affairs (DIA) officers. As well, staff initiated joint thematic surveys with DIA officers of foundries, chemical formulators. A printing industry survey was begun. Approximately 120 workplace visits were made, with detailed follow-up technical advice supplied in many cases.

Country visits included asbestos stripping at Exmouth, Karratha small industries and pest control and Bunbury and Geraldton small industries.

New arrangements with the Commonwealth Health Department have meant that somewhat fewer requests for work in Commonwealth workplaces are passed to the section. One staff member was a witness in a factory safety prosecution.

Surveys of the condition of sprayed asbestos materials in offices, hospitals and other workplaces with recommendations for action were carried out.

Involvement in general and environmental health matters (other than pesticides) included domestic asbestos/cement and thermal insulation.

OCCUPATIONAL HEALTH NURSING

Staffing

The staffing levels remain stable with one full time nursing supervisor and one full time occupational health sister based at the Perth office. One full time occupational health sister at Kwinana and one full time occupational health sister at Karratha remain in post. One sister at the District Medical Office remains under this Branch.

Education

As a resource and preventative service education on a one to one basis and in formal lectures, discussions and seminars continues to occupy much of the occupational health sisters' time.

Talks on a one to one or small group basis are given daily to employees in the work situation. Informal education on most factory visits where problems have been identified and both management and worker are informed and counselled on correct and safe methods and practices.

Formal lectures have been given for:

1. St. John First Aid Courses
2. Dental Therapist in-service education
3. West Australian School of Nursing
4. Occupational Health Nurses Training Courses at WAIT
5. Industrial companies
6. Police Academy
7. Australian Ship Industries.

The nurses have themselves attended seminars and lectures on such diverse subjects as:-

1. Assertive training
2. Ergonomics of the V.D.U. workplace
3. Industrial stress
4. RANF Career Structure Workshop
5. Pesticides Seminar
6. Proposed changes in Public Health Department
7. Biennial Conference on Occupational Health Nursing

Health Surveillance

The health surveillance programmes of the Branch have been a large commitment for the occupational health nurses.

Chest X-rays

Asbestos Workers	238
Ex-Wittenoom Workers	31
Miscellaneous workers	36
Sandblasters	29
	334

Audiograms

Audiograms were undertaken as educational tools and for pre-placement medical examinations.

Biological Monitoring

Lead

Blood lead test:

Total Number of Tests	Number of Repeats	Number RBC Lead (>6 micromol/L RBC)
164	35	33

Pesticides

	Total Number of Tests	Number of Repeats	Number above acceptable level
Dieldrin and Heptachlor Epox	109		3
DDE and DDT	35		3
Red Blood Cell Cholinesterase			Number below acceptable level
	50	5	4
Plasma Cholinesterase	50	5	4

Other Biological Monitoring

Arsenic	(urine test)	3
2,4-D,	(urine test)	3
2,4,5-T	(urine test)	3
Fluoride	(urine test)	77
Mercury	(urine test)	3
MOCA	(urine test)	4
PCBs	(Urine test)	3
Thallium	(urine test)	1

Records

As already stated records of industrial chest x-rays are kept, also registers of asbestosis, silicosis, mesothelioma incidence are maintained. Occupational and environmental histories are obtained from mesothelioma sufferers for the National Mesothelioma Surveillance Programme.

Factory Visits

Regular factory visits have continued from Karratha and Kwinana and visits on an ad hoc basis from Perth. Routine visits may be to reinforce information already given or to advise on any apparent problem. Visits are also made to discuss urgent problems as they arise.

Visits

Karratha	197
Kwinana	359
Perth	147

Treatments

Kwinana	329
Audiograms	321
Respiratory Function Tests	16
District Medical Office	
Police Consultations	2,465
Recruit Medicals	118
Vision Testing	33
Diving/Promotion Medicals	67
Administration Consultation	17
Licence Medicals	39

The nurses helped clean air officers in investigating complaints relating to air pollution problems.

ERGONOMICS

Environmental surveys were undertaken for -

Division of the Intellectually Handicapped
Dental Health
Government Print
Hansard
Police
Public Health Department
Metropolitan Transport Trust
University Department of Surgery
Treasury

There was substantial involvement in the preparation and presentation of a one day symposium organised by the Ergonomics Society of Australia and New Zealand. The theme of the seminar was "People in the Workplace. Ergonomics can Help". 76 people attended.

Two lectures were given to members of the Health Computing Services. The topic was "The Ergonomics of Visual Display Unit Work Areas". Approximately 40 people attended.

The Public Works Furniture Committee, the Film Review Committee and an Industrial Design Council panel were given information and advice on ergonomic factors.

Information and advice on ergonomics has been supplied to Commonwealth and State Government Departments, private industry and individuals. The topics for which information was frequently requested were "Repetition Strain Injury and the Design of Office Furniture".

KARRATHA OCCUPATIONAL HEALTH UNIT

Staff

An occupational health nurse runs this unit at present. Mr. L.J. Hunter resigned as scientific officer in April.

The Pilbara has been characterised by economic stringencies and industrial difficulties.

These factors have contributed significantly to the role of the Karratha Occupational Health Branch.

Liaison between Occupational Health staff and union officials has continued and in particular with the further monitoring of asbestos removal at Cliffs Robe River Iron Associates Cape Lambert, Wickham.

Other investigations have included:

- Noise survey of various sites in Karratha undertaken at the request of the state Energy Commission.
- Air conditioning survey of government offices Port Hedland.
- Continued monitoring of asbestos at Tom Price.

NOISE SECTION

The six months period has seen consolidation of the changes introduced through the reorganization of the Noise Section. There has been an increasing trend for officers to become involved in a wider range of activities. This has in part been a necessary response to the dramatic increase in workload associated with preparations for the introduction of the Noise Abatement (Hearing Conservation in Workplaces Regulations) 1983.

A variety of new initiatives have been commenced and these are described below in conjunction with activities continuing from previous annual reports.

ENVIRONMENTAL NOISE

The Noise Section continued to undertake investigations and deal with enquiries regarding environmental noise for the Noise and Vibration Control Council, other government departments, statutory authorities, local authorities and the general public.

Specific activities included:

1. involvement in court action by the City of Cockburn against W.A. Radio-Modellers Inc., and investigation of alternative sites for the Radio-Modellers and the Coastal Motorcycle Club;

2. development of proposals to control noise from the Claremont speedway;

3. discussions on amendments to the Environmental Protection Act relating to noise;

4. assessment of a proposed residential development in the vicinity of motor sport venues;

5. investigations of the noise aspects of the bird scare systems being used at the Stoneville Research Station.

6. development of proposed Regulations to limit the noise from pool pumps on installation.

Exemptions from the Noise Abatement Act were processed for tree chipping operations, a road construction programme and an aircraft display at Langley Park (not gazetted).

The noise component of environmental impact assessments were prepared for proposed gas turbine installations, a proposed shooting complex and a proposed helipad.

The section provided representation at the Perth Airport Municipalities Group and its technical officers sub-group, the Perth Airport Noise Abatement Committee and the Environmental Noise Control Committee.

Educational activities for community noise have continued, and a pamphlet "Sound Advice" was finalised and 15,000 copies printed for distribution. A recorded telephone advisory service has been devised. Equipment has been received and the system awaits the release of the Telecom 1984/85 directory.

OCCUPATIONAL NOISE

The Noise Abatement (Hearing Conservation in Workplaces) Regulations were gazetted in October 1983 and come into operation on October 21st, 1984. Hence the main hearing conservation activities of the Noise Section related to preparation for their introduction and enforcement. These included participating in lecturing and examining for 6 noise officer and 3 audiometric officer courses; assessing applications for approval (9 noise officer, 32 audiometric officer and 3 approved medical practitioner applicants have been deemed suitable for approval by the Commissioner); presenting papers about the Regulations at seminars and meetings in Perth; Collie and Kalgoorlie; holding advisory talks with individuals, representatives from private industry and government agencies; developing detailed criteria for approval of sound measuirng equipment, calibration methods and calibration laboratories; and revising and reprinting the 'Guidance Notes' on the Regulations and the 'Industrial Deafness' pamphlet. Amendments to the Regulations which clarify interpretation have been prepared for consideration by the Noise and Vibration Control Council.

A proposal for a substantial effort in the area of equipment and machinery noise assessment, noise emission limits and noise labelling was prepared. Investigations continued into commissioning the mobile hearing conservation unit.

Discussions were commenced on noise levels and other aspects of working conditions in offices of the State Energy Commission.

Noise Surveys

The only noise measurements carried out were in a preliminary survey for the Phosphate Mining Company of Christmas Island as part of an overview of their hearing conservation programme.

Education

In addition to the extensive educational activities associated with the introduction of the Regulations described above, a new project involves the collection of material on examples of successful engineering noise control projects in Western Australia.

Research Grant

A grant for $52,000 was received from the Federal Department of Employment and Industrial Relations to investigate the measurement of impulse noise by sound exposure meters.

NOISE INSPECTORS

Environmental and occupational noise inspections have been conducted on a daily basis. These inspections have included shopping centres, pool pumps, ventilation systems, sound insulation problems, factory noise, public halls, hotels, dogs, boats, buses and a poultry farm.

Advice has been provided on a daily basis to local authorities, government departments and others on noise control matters and noise legislation. Proposals have been formulated for the training and approval of Workplace Inspectors under the Hearing Conservation Regulations, and an in-service training day held for prospective inspectors. Two orientation sessions have been held to explain the Regulations to inspectors from the Department of Industrial Affairs.

NOISE LABORATORY

The laboratory calibrated 25 sound level meters and 11 audiometers for various authorities. Other activities included the maintenance and servicing of the Section's own equipment, and the assessment of audiometers to determine their suitability for use by prospective approved medical practitioners and audiometric officers under the Hearing Conservation Regulations. Substantial progress has been made in the fitting out and equipping of the Environmental Noise Monitoring Van, and the work is expected to be completed in the second half of 1984.

The possibility of achieving N.A.T.A. certification for the noise laboratory was investigated. Arising from this investigation, the increasing difficulties being encountered in calibrating new types of sound measurement equipment and the expected increase in demand for calibration services, a proposal was developed for a government noise facility involving a new building, staff and equipment.

CLEAN AIR SECTION

The activities of the section are described under the following headings:-

A. MONITORING OF AIR POLLUTANTS
B. SPECIAL INVESTIGATIONS AND TESTING
C. ADVISING ON AIR POLLUTION CONTROL AND EDUCATION
D. COMPLAINTS AND STATUTORY DUTIES

A. MONITORING OF AIR POLLUTANTS

1. Dust Monitoring

The Central Electricity Research Laboratories (CERL) directional dust gauge and the standard New South Wales glass deposit gauge are used in W.A.

Perth Area

For the period January to June 1984, 24 CERL gauges were sited in the metropolitan area as follows:

City Beach
East Perth
Lathlain Park
Rivervale (2)
Gosnells (2)
Osborne Park
Perth Airport
Welshpool
Kewdale
Maddington (2)
Armadale
Palmyra
Munster (2)
Hazelmere
Naval Base
Baldivis (3)
Noranda
Kwinana

For results see Appendix A.

The results for deposit gauges situated at City Beach, East Perth, Belmont, Parmelia, Welshpool and Naval Base are shown in Appendix B.

Port Hedland

Six gauges were maintained in Port Hedland during the period and were located as follows:

Gauge No.	Location
1	Anderson Street, Port Hedland
2	Howe Street, near Hospital
3	Spinifex Hill, near Shire Office
4	Cooke Point
5	Leslie Salt, Redhill
6	Stanley Street, South Hedland

The dust samples from each gauge were collected by officers of the Shire of Port Hedland and processed in the section's laboratory in Perth. For results see Appendix C.

Cape Lambert/Dampier/Karratha

Eight CERL dust gauges were maintained in the area during the period and located as follows:

Gauge No.	Location
1	Port Area, Port Samson
2	Immediately South of port area
3	North of Wickham town site
4	South of Wickham town site
5	Parker Point, Dampier
6	Bowling Club, Dampier
7	Karratha Airport
8	Fire Station, Karratha

The Health Surveyor of the Shire of Roebourne has continued to collect the dust samples, maintain the gauges in the area and forward the samples to Perth for processing. For results see Appendix D.

Kalgoorlie

Seventeen CERL gauges are processed for the Goldfields Dust Abatement Committee and located as follows:-

Gauge No.	Location
1	Trafalgar town site
2	Lionel Street
3	Mafeking Street
5	Lane Street
6	Chesapeake Street, Boulder
7	Burt Street
9	Maritana Street
10	North Kalgoorlie Primary School
11	Killarney Street, Lamington
12	Piccadilly Street

14	Gt. Eastern Highway, West Kalgoorlie
15	Boulder Rifle Range
16	Kambalda Road, Mt. Hunt
18	Brown Hill
19	Bulong Road, East Kalgoorlie
20	West Kalgoorlie
21	East of Trafalgar

For results see Appendix E.

2. Particulate Monitoring

The United States Environmental Protection Authority high volume sampler is used in W.A.

Perth City

Three samplers are sited in the city:

a) Bureau of Meteorology, Hill Street, Perth, sample point 10 metres above ground and 10 metres from the pavement.

b) Queens Buildings, William Street, Perth, sample point 4.5 metres above pavement.

c) Occupational Health, 57 Murray Street, Perth, sample point 1.5 metres above ground, 2 metres from pavement.

The collected particulates are analysed for lead by the Government Chemical Laboratories and the Western Australian Institute of Technology.

For results see Appendix F. (Particulates.)

Kalgoorlie Hospital

High volume sampling at the Kalgoorlie Hospital has continued.

For results see Appendix G.

Port Hedland

The Department is grateful to officers of Mt. Newman Mining Company who maintained four high volume samplers in Port Hedland during the period January to June 1984. Unfortunately due to the unavailability of spare parts, the samplers at Stanley Street and the Port Hedland Airport were not operating.

The results of the samplers situated as follows are shown in Appendix H.

Sampler No.	Location
1	Howe Street, near Hospital
2	Swimming Pool, near Shire Offices

3. Sulphur Dioxide

Perth Metropolitan Area

Monitoring of sulphur dioxide and smoke has continued at 12 sites, but only with the help of residents in the many suburbs who have continued to assist the Clean Air Section by accommodating and operating these samplers in their homes. The Public Health Department wishes to thank them for their most valuable help.
For results see Appendices I and J.

Kalgoorlie

Continuous monitoring of sulphur dioxide was carried out at the Kalgoorlie Regional Hospital and the Kalgoorlie Technical School.

For results see Appendices K and L.

Muja

Monitoring of sulphur dioxide was commenced in April for the Muja area, in conjunction with the State Energy Commission.

The results are shown in Appendix M.

Wagerup

Monitoring for sulphur dioxide was commenced in January at Wagerup in conjunction with Western Mining Corporation.

The results are shown in Appendix N.

4. Oxides of Nitrogen

The sampling site at 57 Murray Street, Perth, has continued to be operated on a 24 hour basis.

For results see Appendix O.

5. Carbon Monoxide

Monitoring for carbon monoxide has continued at 57 Murray Street, Perth.

For results see Appendix P.

6. Lead

Lead was monitored in the city by the high volume sampler method during the period.

For results see Appendix Q.

B. SPECIAL INVESTIGATIONS AND TESTING

1. Superphosphate Works

Four superphosphate manufacturing plants were tested during the six months. New scrubber systems had been installed at all plants tested.

For results see Appendix R.

2. Vineyard Monitoring

Monitoring of ambient air fluoride concentrations was carried out during the 1983-84 growing season at a vineyard in the Swan Valley. Foliar injury at several sites was severe and compatible with the higher fluoride concentrations measured in air as shown in Appendix S.

The assistance given by the officers of the Department of Agriculture for leaf sampling and the analysis of the leaves by the Government Chemical Laboratories is gratefully acknowledged.

Results failed to show any adverse effect on grape yield and quality at the fluoride concentrations measured. However, the effect on the life of the vines to continuous exposure to concentrations of ambient air fluoride at similar levels is unknown.

Fluoride emissions were measured at a brickworks to evaluate scrubber efficiency.

3. 2,4-D Monitoring at Geraldton

Officers of the section continued to support the Agriculture Department with monitoring and general assistance.

4. Source Testing

Testing was carried out at seven plants for various emissions.

The results are shown in Appendix T.

5. Miscellaneous

The Clean Air Section continued to support other government departments, local authorities, and private companies when called on during the year.

C. ADVISING ON AIR POLLUTION AND EDUCATION

As in past, numerous enquiries were received by the Clean Air Section from students and the public for information on air pollution and allied matters. Lectures were given to various professional organisations and tertiary educational institutions.

Senior staff members were required to attend miscellaneous meetings to give advice on matters pertaining to air pollution.

D. COMPLAINTS AND STATUTORY DUTIES

During the year similar numbers of complaints received in past years were again dealt with. The cause of the complaints varied from dust to odours, originating from a wide range of industries and commercial premises.

Routine inspections and special inspection of industrial premises were carried out by the Section's officers as required by the Scientific Advisory Committee and the Air Pollution Control Council.

All meetings of the Scientific Advisory Committee and the Air Pollution Control Council, or special sub-committee meetings, were attended by the principal assistant or senior officers of the section.

All meetings of the Ventilation Board established under the Mines Regulation Act 1946-1974 were attended by a senior officer of the Clean Air Section.

E. STAFF

a) The Principal Assistant is the Public Health Department's nominee to sit on the National Health and Medical Research Council/A.E.C. Joint Committee to review national emission standards for air pollutants.

b) A scientific officer is a member of the Australian Standards Association "Committee for the Examination of Air".

APPENDIX A

DUST TESTING PROGRAMME - PERTH METROPOLITAN AREA

JANUARY - JUNE 1984

GAUGE	TOTAL* DIRTINESS
City Beach	1.1
East Perth	1.3
Lathlain Park	1.2
Rivervale 1	2.4
Rivervale 5	3.1
Perth Airport	1.4
Kewdale 1	2.3
Maddington 1	4.6
Maddington 2	2.4
Gosnells 2	0.9
Gosnells 3	3.0
Hazelmere	2.0
Welshpool 2	1.9
Bayswater	1.1
Rivervale 6	2.2
Naval Base 2	2.0
Munster 2	8.9
Munster 5	5.7
Armadale 1	1.7
Baldivis 1	2.9
Baldivis 2	2.4
Baldivis 3	5.0
Osborne Park	1.4
Noranda	0.7
Palmyra	1.9
Kwinana 6	5.8
Wattleup	2.4

*Six months average.

APPENDIX B

DUST GAUGES - JANUARY - JUNE 1984

Deposition (milligrams per sq. metre per day)

Sampling Point	Total* Insolubles	Total* Inorganic
Belmont	26	19
City Beach	21	13
East Perth	48	29
Welshpool	36	23
Naval Base	82	45
Parmelia	42	25

*Six month average.

APPENDIX C

DUST TESTING PROGRAMME - PORT HEDLAND

Mean total dirtiness-dust concentration and mean per cent iron ore in total dust from dust gauges for the six months period January - June, 1984.

Gauge No.	Location	Total Dirtiness Dust Concentration	Per cent Iron Ore
1	Anderson Street, Port Hedland	11.2	53
2	Howe Street, near Hospital, Port Hedland	11.1	46
3	Spinifex Hill	2.9	10
4	Cooke Point, Port Hedland	1.6	8
5	Leslie Salt, Redhill	4.1	11
6	Stanley Street, South Hedland	1.1	5

APPENDIX D

DUST TESTING PROGRAMME -CAPE LAMBERT/DAMPIER/KARRATHA

Mean total dirtiness-dust concentration and mean per cent iron ore in total dust from dust gauge for the six months period January - June 1984.

Gauge No.	Location	Total Dirtiness Dust Concentration	Per Cent Iron Ore
1	Port Area, Port Samson	1.6	-
2	Immediately S. of Port Area	5.3	-
3	North of Wickham Town Site	1.9	-
4	South of Wickham Town Site	1.8	-
5	Parker Pt. Dampier	8.3	13
6	Bowling Club, Dampier	4.8	20
7	Karratha Airport	4.9	5
8	Fire Station, Karratha	2.4	7

APPENDIX E

DUST TESTING PROGRAMME, FOR THE GOLDFIELD DUST ABATEMENT COMMITTEE, KALGOORLIE/BOULDER AREA

Mean total dirtiness- dust concentration from dust gauge for the six months period January - June 1984.

Gauge No.	Total Dirtiness Dust Concentration
1	17.0
2	2.8
3	12.4
5	1.7
6	2.8
7	1.5
9	2.4
10	1.8
11	1.7
12	1.8
14	1.8
15	1.3
16	2.0
18	4.1
19	2.2
20	1.1
21	10.3
22	4.1

APPENDIX F

PARTICULATES IN AIR - HIGH VOLUME SAMPLING

January - June 1984
(All results in micrograms per cubic metre of air)

Site	Half-Annual Average	Highest 24 Hour
Bureau of Meteorology, Perth	38	59
Queens Buildings, Cnr. Murray and William Streets	48	76
Occupational Health, 57 Murray Street Perth	49	74

APPENDIX G

PARTICULATE HIGH - VOLUME SAMPLING,

KALGOORLIE HOSPITAL - JANUARY - JUNE 1984

(All results in micrograms per cubic metre)

	Monthly Average	Maximum Daily Concentration
January	99	178
February	92	129
March	77	140
April	59	96
May	32	42
June	41	54

Arithmetic mean : 67*
Geometric mean : 57*

*for six month average.

APPENDIX H

HIGH VOLUME SAMPLING, PORT HEDLAND

(All results micrograms per cubic metre)

HOWE STREET (NEAR HOSPITAL)

	JAN	FEB	MARCH	APRIL	MAY	JUNE
Monthly Average	66	57	133	93	207	233
Maximum Daily Concentration	118	61	404	129	434	328

6 month arithmetic mean : 125   6 month geometric mean :87

SWIMMING POOL (NEAR SHIRE OFFICES)

	JAN	FEB	MARCH	APRIL	MAY	JUNE
Monthly Average	45	64	48	29	40	40
Maximum Daily Concentration	55	89	84	36	65	60

6 month arithmetic mean : 44   6 month geometric mean : 41

APPENDIX I

SULPHUR DIOXIDE CONCENTRATIONS

PERTH METROPOLITAN AREA - JANUARY - JUNE 1984

All results expressed in micrograms per cubic metre.

SITE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	SEVEN HIGHEST 24 HOUR VALUES FOR YEAR	AVERAGE
Perth	14	12	9	12	3	5	99 39 38 36 31 27 25	9
Bentley	12	12	6	8	2	3	31 30 28 27 26 25 24	7
Banganup	19	12	14	7	2	2	61 61 56 50 45 41 40	9
Claremont	13	14	9	9	1	1	55 50 34 29 29 27 26	8
Hillman	3	2	2	3	4	15	61 53 45 41 32 30 22	5
Inglewood	13	10	5	6	2	2	39 39 29 23 20 19 19	6
Medina	8	4	4	6	10	6	59 53 29 25 25 23 22	6
Orelia	14	13	11	12	12	6	51 50 47 41 39 39 39	11
Rockingham	6	3	2	4	5	20	89 62 52 51 47 45 43	7
Wembley Downs	6	5	3	4	1	1	28 24 21 17 17 15 14	3
Lynwood	15	5	7	4	1	2	46 38 25 25 23 21 19	6
Hope Valley	13	9	6	5	5	4	49 48 43 34 31 29 26	7

APPENDIX J

METROPOLITAN SMOKE READINGS - JANUARY - JUNE 1984

All results in micrograms per cubic metre

Site	Average*
Perth	6
Bentley	3
Banganup	2
Claremont	4
Hillman	3
Inglewood	6
Medina	2
Orelia	2
Rockingham	3
Wembley Downs	4
Lynwood	4
Hope Valley	3

*6 month average.

APPENDIX K

SULPHUR DIOXIDE CONCENTRATIONS

KALGOORLIE REGIONAL HOSPITAL JANUARY - JUNE 1984

Results in micrograms per cubic metre at STP

MONTH	HIGHEST 1 HR. AV.	HIGHEST 3 HR. AV.	HIGHEST DAILY AV.	MONTHLY AVERAGE	DATA RECOVERY %
JAN.	907	330	68	15	37.0
FEB.	2097	1282	209	66	71.1
MARCH	1664	1105	332	54	99.6
APRIL	1984	898	219	42	99.3
MAY	2172	1020	169	16	98.6
JUNE	809	487	96	13	99.4

APPENDIX L

SULPHUR DIOXIDE - KALGOORLIE TECHNICAL SCHOOL

JANUARY - JUNE 1984

Results in micrograms per cubic metre at STP

MONTH	HIGHEST 1 HR. AV.	HIGHEST 3 HR. AV.	HIGHEST DAILY AV.	MONTHLY AVERAGE	DATA RECOVERY %
JAN.	2263	844	220	65	90.8
FEB.	1590	1075	319	118	97.3
MARCH	2050	1436	275	90	84.2
APRIL	1212	793	212	79	62.5
MAY	3396	1623	288	39	99.0
JUNE	1265	630	96	25	97.6

APPENDIX M

MUJA SULPHUR DIOXIDE CONCENTRATIONS - JANUARY - JUNE 1984

All results in micrograms per cubic metre

SITE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	SEVEN HIGHEST 24 HOUR VALUES FOR PERIOD	SIX MONTHS AVERAGE
Atmospheric Survey Station	-	-	-	5	1	1	18 13 11 5 3 3 3	3
Western Bore Pump Station	-	-	-	4	0	0	18 7 5 4 2 2 1	1
I.C.I. Compound	-	-	-	3	1	1	9 5 5 5 3 3 2	2
Shots Bore Pump Station	-	-	-	1	1	0	4 4 3 3 3 2 2	1

APPENDIX N

WAGERUP SULPHUR DIOXIDE CONCENTRATIONS - JANUARY - JUNE 1984

All results in micrograms per cubic metre

SITE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	SEVEN HIGHEST 24 HOUR FOR PERIOD	SIX MONTHS AVERAGE
Site 1	1	1	2	2	0	1	14 9 8 5 3 3 3	1

APPENDIX O

METROPOLITAN OXIDES OF NITROGEN CONCENTRATIONS - JANUNARY - JUNE 1984

All results expressed in micrograms per cubic metre

SITE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	HIGHEST 24 HOUR AVERAGE	LOWEST 24 HOUR AVERAGE	SIX MONTHS AVERAGE
Perth	41	45	52	47	61	73	155	17	53

APPENDIX P

CARBON MONOXIDE - 57 MURRAY STREET

JANUARY - JUNE 1984

Results in parts per million

MONTH	HIGHEST 1 HR AV.	HIGHEST 8 HR. AV.	MONTHLY AVERAGE	DATA RECOVERY %
JANUARY	2.3	1.8	0.7	93
FEBRUARY	2.4	2.1	0.7	86
MARCH	2.4	1.5	0.7	100
APRIL	2.2	1.4	0.5	100
MAY	5.5	3.5	0.8	95
JUNE	6.7	2.9	0.9	100

APPENDIX Q

24 HOUR HIGH VOLUME SAMPLING OF AIRBORNE LEAD - 1984

All results in micrograms per cubic metre of air*

Site	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
Queen's Buildings						
Cr. Murray & William Street, 4.5m above pavement		1.6			2.3	
P.H.D.						
57 Murray Street, 1.5m above, 2m behind pavement		1.9			2.5	
Bureau of Meteorology						
Perth 10m above ground 10m from pavement		0.49			1.1	

*Quarterly Average.

APPENDIX R

FLUORIDE EMISSIONS FROM SUPERPHOSPHATE WORKS

Location	Kilograms/hr of Fluoride
Albany	0.53
Bunbury	0.16
Esperance	<0.01
Geraldton	0.35

APPENDIX S

FLUORIDE CONCENTRATIONS AS HYDROGEN FLUORIDE, AVERAGE MEASURED AT A VINEYARD NEAR BRICK WORKS*

	Fluoride (as HF) Micrograms Per Cubic Metre
October (1983)	0.36
November	1.36
December	0.79
January (1984)	0.66
February	0.64

*1983/84 Growing Season.

APPENDIX T

SOURCE TESTING- JANUARY - JUNE, 1984

(a) PARTICULATES

DESCRIPTION OF WORKS	TEST PERIODS	LOCATION	AVERAGE PARTICULATE EMISSION (gram per cubic metre of flue gas corrected to o°C, and 1 atmosphere, dry)
Bitumen Plant	1	Gosnells	0.31
	1	Osborne Park	0.33
Nickel Smelter	1	Kalgoorlie	0.19
Cement Works	1	Munster	0.20
	1	Rivervale	0.05
Gold Smelter	1	Mt. Windara	Less than 0.01

(b) GASEOUS

DESCRIPTION OF WORKS	TEST PERIODS	LOCATION	AVERAGE EMISSION (gram per cubic metre of flue gas corrected to o°C, and 1 atmosphere, dry)
Sulphuric Acid Plant	1	Australind	0.10
		Acid Mist (as SO_3)	
		Acid Gases (as SO_3)	8.40
Sulphation Plant	1	Australind	
		Acid Mist (as SO_3)	0.03
		Acid Gases (as SO_3)	0.04
Gold Smelter	1	Mt. Windara	
		Acid Mist (as SO_3)	0.06
		Acid Gases (as SO_3)	51.20
Nitric Acid Plant	1	Kwinana Nitrogen Oxides (as NO_2)	3.13
Brickworks	1	Midland Fluorine	0.02 kg/hr

Appendix XIII

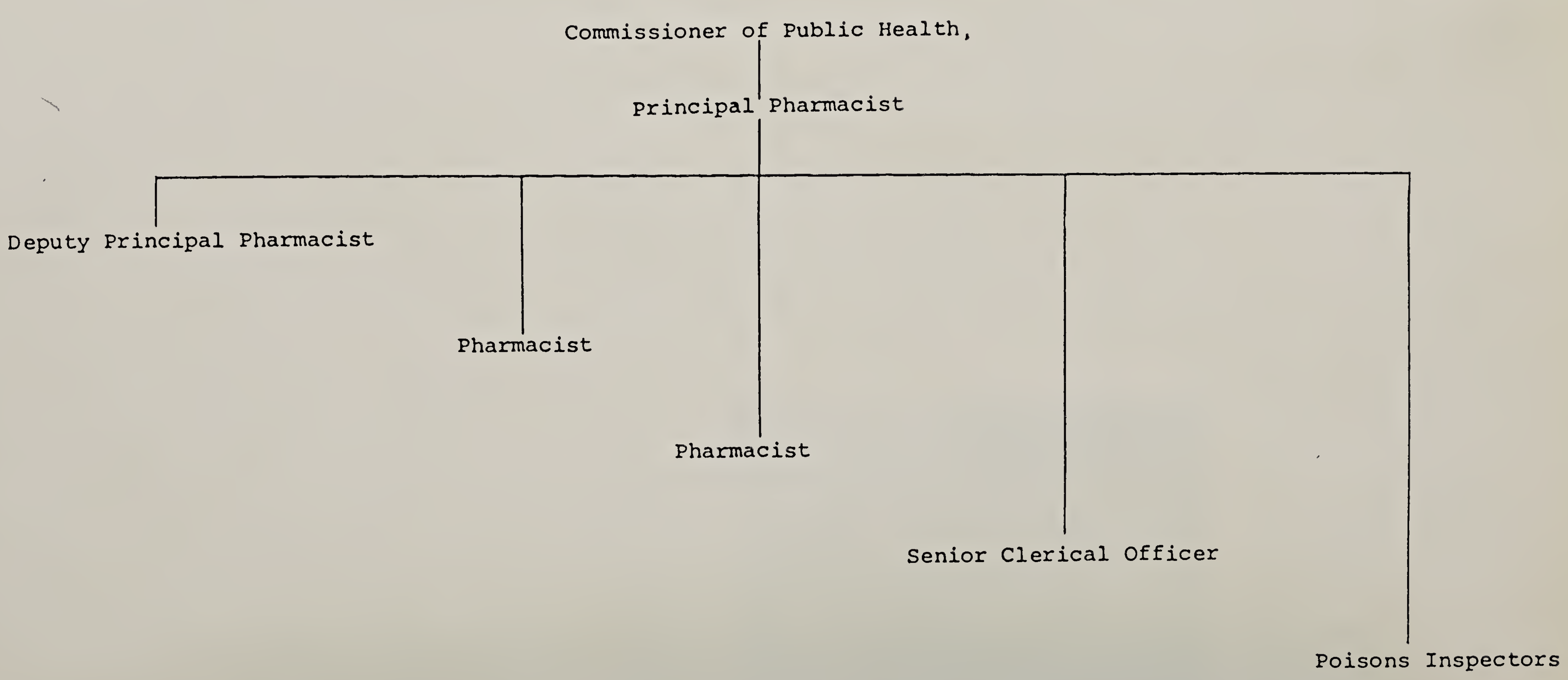
PHARMACEUTICAL SERVICES BRANCH

W.M. Griffiths,
B. Pharm., F.P.S. (G.B.), M.P.S.
Principal Pharmacist

SENIOR STAFF

Principal Pharmacist :
Mr. W.M. Griffiths
Deputy Principal Pharmacist :
Mr. G.F. Foley
Pharmacist : Mr. M. Cousins
Pharmacist : Mrs. J.A. Luke
Senior Clerk : Mr. J. Chilby

PHARMACEUTICAL SERVICES BRANCH - ORGANIZATION CHART



PHARMACEUTICAL SERVICES BRANCH

The Pharmaceutical Services Branch is responsible for the day to day administration of the Poisons Act, Poisons Act Regulations, Pesticides Regulations, certain aspects of therapeutic goods, the oversight of Pharmaceutical Services to government hospitals and liaison when necessary with the Pharmaceutical Council.

The Branch provides the Secretariat for the Poisons Advisory Committee, Pesticides Advisory Committee and the Pest Control Operators Committee, and also provides representative members on the Inter-hospital Pharmacists Advisory and Liaison Committee, the Tender Board Advisory Committee for Drugs, the Technical Committee on Agricultural Chemicals, Poisons Schedule Standing Committee of the National Health and Medical Research Council and National Therapeutic Goods Committee and ad hoc meetings relevant to Branch matters.

Close liaison is maintained with the Alcohol and Drug Authority concerning supplies of drugs of addiction.

ADMINISTRATION

Regrettably Mr. Bill Griffiths, Principal Pharmacist was forced by ill health to commence extended sick leave on March 1, 1984. Mr. Gerry Foley assumed the duties of Acting Principal Pharmacist and Mr. M. Cousins took on the duties of Acting Deputy Principal Pharmacist.

Mr. Cousins and Mr. Foley continued attendances at various committees associated with the work of the Pharmaceutical Services Branch.

Mr. Cousins performed the duty of Acting Secretary of the Pesticides Advisory Committee on four occasions, continued to collate and prepare the working papers for the Pesticides Advisory Committee, reply to enquiries on pesticides received from industry, other government departments and the general public. Close liaison was maintained with the Department of Agriculture in regard to enquiries on pesticide usage.

Mr. Cousins attended a meeting of the Technical Committee on Agricultural Chemicals and a meeting of the Poisons Schedule Standing Committee of the National Health and Medical Research Council. Mr. Cousins also continued to assist in the examination of prospective Pest Control Operators.

Mrs. Joyce Luke, Pharmacist continued her role in administering the Poisons Act Regulations by replying to enquiries on poisons and hazardous substances received from industry and the general public and other government departments and the examination of labels and packaging of poisons. Mrs. Luke also performed the duty of Acting Secretary of the Poisons Advisory Committee on one occasion and played a major role in preparing and collating the working papers and minutes of the committee.

The Branch continued to monitor supplies of drugs of addiction. Mrs. Luke is the confidential officer responsible for communication with health professionals on matters concerning patients in relation to certain controlled medications, as well as licencing and inspection reports concerning poisons.

NEW APPOINTMENTS

Mr. David Liversidge was appointed to the Branch as a CIV Clerk on a temporary basis to bring the PESTWA computer system up to date.

POISONS

During the half year period there were two meetings of the Poisons Advisory Committee. A special meeting of this committee was also convened to discuss the ages of sales assistants in respect to the sale of poisons.

Six new wholesale dealing licences were granted, each involving an inspection of the premises and a written report by one of the poisons inspectors. Any changes to wholesale licence holders or addresses of premises were inspected and a report written before approval was granted for continued operations. The poisons inspectors made 159 visits to pharmacists during the half year period. There are 431 licenced pharmacies in Western Australia.

143 applications for poisons licences were processed.

Forty-eight printed label drafts for poisons were assessed in addition to assessments on poisons labels and other general enquiries.

Close liaison is maintained with the Registrar of Veterinary Preparations and Animal Feeding Stuffs Act to ensure that all veterinary products are labelled in accordance with the Poisons Act Regulations as appropriate.

The Poisons Schedules were redrafted to be in line with the Uniform Poisons Standard as published by the National Health and Medical Research Council. It is anticipated that these redrafted schedules will be gazetted later in the year.

Three successful prosecutions were instituted for breaches of the Poisons Act Regulations. Three more prosecutions were commenced during this period.

PESTICIDES

During the half year period there were five meetings of the Pesticides Advisory Committee.

Pesticide formulations registered as at June 30, 1984 numbered 1339.

136 new applications for registration of pesticides were received, of these 43 were approved for registration, the balance being held for further consideration.

69 label amendments to registered pesticides were processed.

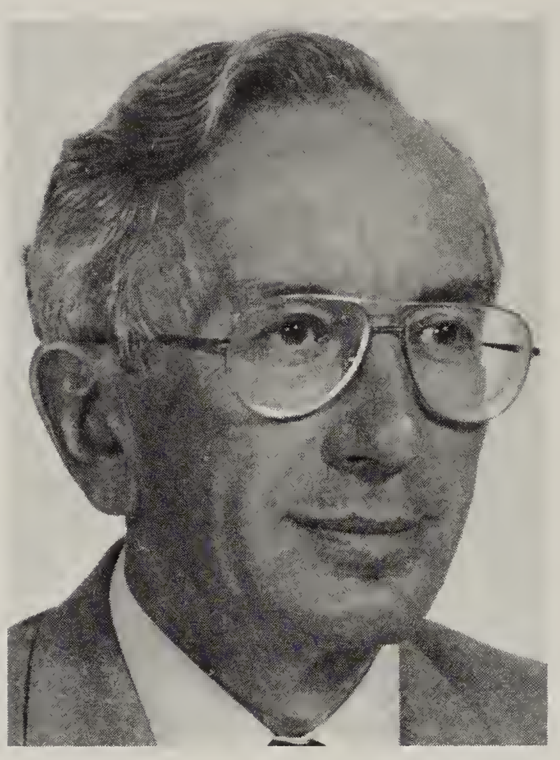
55 applications were received for clearance of new agricultural chemicals or new uses of established agricultural chemicals in co-operation with the National Technical Committee on Agricultural Chemicals based in Canberra.

The Commercial Pesticides Firms and Operators Committee met ten times to examine 68 applicants for pesticide operators licences of whom 65 acquired their licences. One application for registration of a commercial pesticide firm was received which was granted after inspection of equipment vehicles safety gear and the premises.

One candidate applied successfully for a licence as a fumigator.

Appendix XIV

STATE HEALTH LABORATORY SERVICES



J.J. Rippey
M.B.B.S., Ph.D.(Med.), F.R.C.P.
F.R.C.Path., F.R.C.P.A., D.Path.,
D.P.H., D.T.M. & H.
Director

Senior Staff (Full-time)

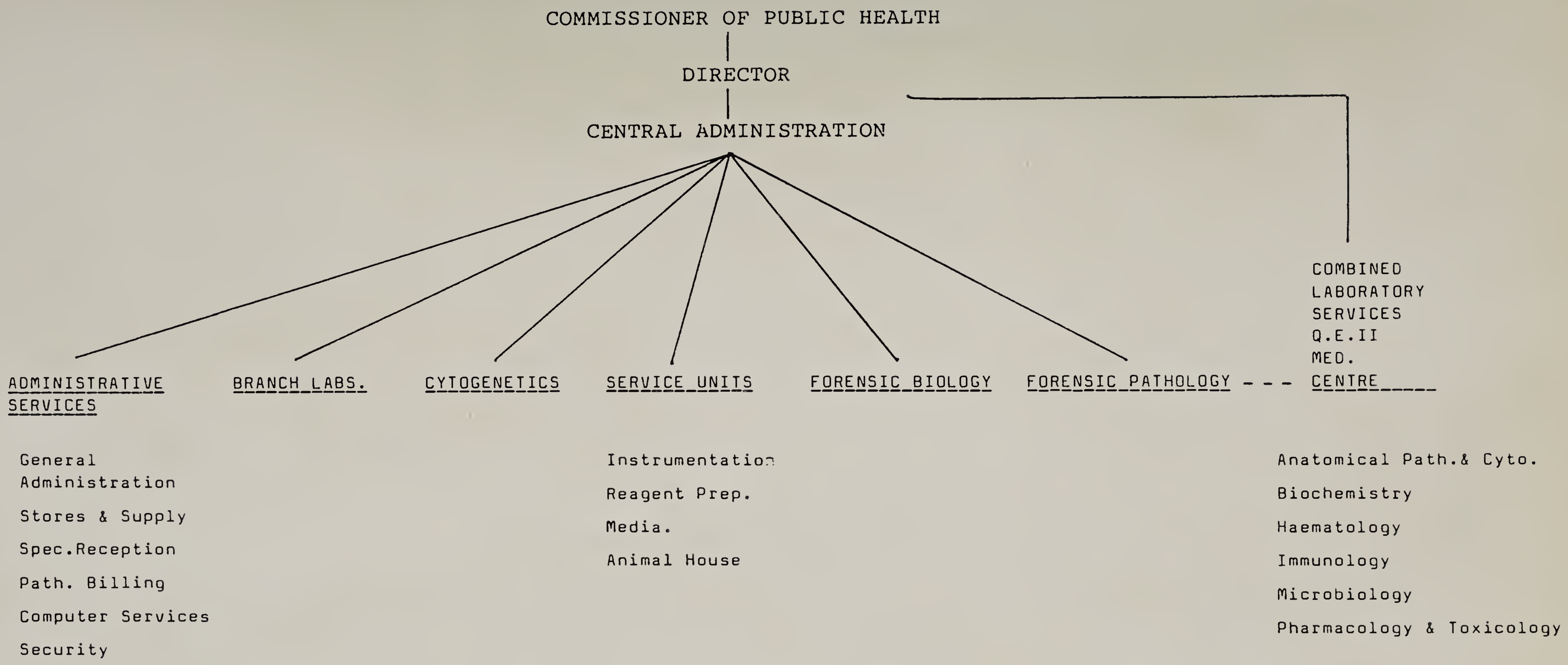
Director : Dr. J.J. Rippey
Principal Technologist : Mr. A.R. Fergie
Deputy Principal Technologist : Mr. G.S. Faulkner
Administrative Officer : Mr. L.A. Higgins
Clinical Pathologist : Dr. H.J Woodliff
Clinical Pathologist : Dr. A.J.N. Gaman
Immunologist : Dr. M.S. Stuckey
Pathologist, Cytogenetics : Dr. M.T. Mulcahy
Chief Microbiologist: Dr. A. Henderson
Medical Microbiologist: Dr. G.E. Rich
Microbiologist (Medical) : Dr. M. Bucens
Forensic Pathologist : Dr. D. Hainsworth
Forensic Pathologist : Dr. D.A. Pocock
Forensic Pathologist : Dr. J.M.N. Hilton
Pathologist Cytologist : Dr. J. Shapiro
Clinical Pathologist : Dr. K.E Williams
Clinical Pathologist : Dr. J.A. Pollard

****

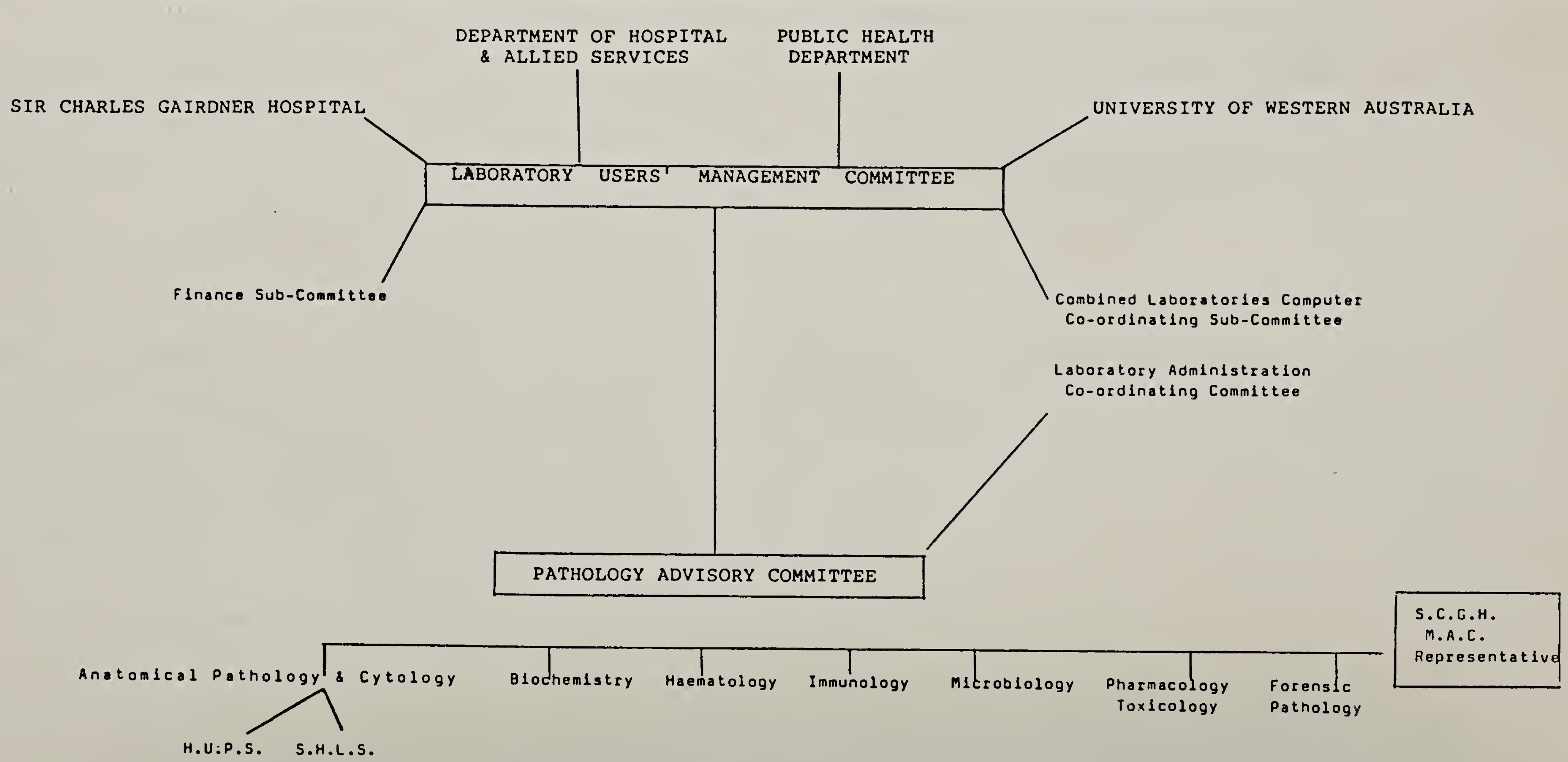
Directors and Heads of Combined Units, Not S.H.L.S. Staff

Biochemistry : Professor D.H. Curnow
Toxicology : Professor J.W. Paterson
Haematology : Dr. D.W.G. Kennett
Histopathology/Cytology : Professor M.N-I. Walters
Microbiology : Vacant
Immunology : Associate Professor R.L. Dawkins

STATE HEALTH LABORATORY SERVICES - ORGANIZATION CHART



MANAGEMENT STRUCTURE OF COMBINED LABORATORY SERVICES AT THE QUEEN ELIZABETH II MEDICAL CENTRE


DEPARTMENT OF HOSPITAL & ALLIED SERVICES
PUBLIC HEALTH DEPARTMENT
SIR CHARLES GAIRDNER HOSPITAL
UNIVERSITY OF WESTERN AUSTRALIA
LABORATORY USERS' MANAGEMENT COMMITTEE
Finance Sub-Committee
Combined Laboratories Computer Co-ordinating Sub-Committee
Laboratory Administration Co-ordinating Committee
PATHOLOGY ADVISORY COMMITTEE
Anatomical Pathology & Cytology
H.U:P.S.
S.H.L.S.
Biochemistry
Haematology
Immunology
Microbiology
Pharmacology Toxicology
Forensic Pathology
S.C.G.H. M.A.C. Representative

All are responsible to the Director, State Health Laboratory Services for non-teaching hospital diagnostic services and public health work.

STATE HEALTH LABORATORY SERVICES

1. INTRODUCTION

The chief event affecting the laboratories during this period was the introduction of Medicare health provisions by the Commonwealth Government. As a result of a special arrangement for the laboratories, included in the State Commonwealth Medicare agreement, charges to patients by the laboratories would cease and the laboratories would be recompensed by a Commonwealth grant for the ensuing loss of revenue. This has eliminated much administrative work with regard to pathology billing and has allowed the laboratories to concentrate on their major service and diagnostic functions. A few anomalies have arised where teaching hospitals continue to bill their private patients for pathological investigations, whilst the State Health Laboratory Services would carry out referred tests on the same patients for no charge.

The effects of Medicare on the workload are difficult to estimate with any degree of accuracy, but general impressions are that the teaching hospitals are being subjected to greater patient demands whilst non-teaching hospitals show little change, or in some cases, a diminution in their workload. Thus the central laboratories show some increase in work and there has been an overall slight decrease in the work in the branch laboratories.

A proposal during this period to rationalise the workload situation in the Pilbara Region by transferring a laboratory technologist from Tom Price to Port Hedland resulted in much local concern, with consequent political intervention. It was decided at high level that the technologist should remain at Tom Price and a new position was made available for the Port Hedland Laboratories.

Otherwise much of the activities were of a routine nature, with settling down into the new premises being successfully completed. Little in the way of new equipment was acquired during this time, the latter half of the financial year. Computerisation continues to progress although changes in the staff of the Computer Services and the inability to place more demands on the cyber computers has slowed the rate of progress.

2. ADMINISTRATIVE SERVICES

Finance

The introduction of Medicare had a significant impact on expenditure and revenue over this period. The main factors involved the discontinuation of patient billing from 1st February 1984, and the inclusion of revenue compensation provisions in the Commonwealth/State Medicare Agreement for the laboratories. Administrative savings resulted from the wind-down of billing procedures and the revenue loss was paid by the Commonwealth by way of a monthly provisional grant commencing from 15th March 1984. An amount of $1,595,000 was received.

Departmental revenue for the period totalled $1,544,600 and includes recoveries of patient fees prior to 1st February, 1984 and other receipts for water sampling and sale of media.

Contingencies expenditure for the period, of $2,866,100, was influenced by the increased cost of consumable supplies and a revision of the cost sharing arrangements with S.C.G.H. was instituted to compensate for any change in workload. The rebate received was $240,500.

Capital works expenditure for the completion of 'J' Block recorded payments of $160,900 for the period. The total cost of this project to date is $7,045,100 and further payments to finalise works are estimated to be approximately $210,000 in 1984/85.

Staff

Staff changes are shown below:-

Position	Recruited	Resigned	Retired
Clinical Pathologist	1	-	-
Senior Laboratory Technologist	-	1	-
Laboratory Technologist	2	4	-
Laboratory Assistant	16	16	2
Laboratory Attendant	6	1	-
Cytotechnician	1	2	-
Programmer Grade I	-	1	-
Clerk	1	-	-
Typists	1	1	-
Data Processor Operator	2	2	-
Clerical Assistant	1	2	-
Security Officer	3	2	1

Input changes of senior staff are as follows:-

Dr. K. Williams - Clinical Pathologist, continued full time work.
Dr. A. Roberts - Clinical Pathologist, commenced from 24/2/84.

With vacancies for two full time Clinical Pathologists in the Histopathology Division, from the previous period, and the shortage of qualified applicants, approval was obtained to employ personnel on a sessional basis.

Dr. G. Kelsall, commenced 8 sessions per fortnight from 27 February, 1984.

Dr. L.R. Finlay-Jones, increased sessions from 8 to 9 per fortnight.

Supply

The Supply/Inventory computer system is still functioning effectively and the following enhancements to the system have been effected:-

1. Costs of reagent preparation stock for re-issue are distributed to each laboratory cost centre. These are derived from past usage and applied as a percentage of total cost.

2. The expenditure analysis report has been altered to show committed expenditure commitments received, annual and period budgets, a variation between budget and committed expenditure.

3. Direct purchase requisitions for standing orders have been changed to allow commitments to be entered into the system at the time of receival. This means that the commitment is disbursed over the period of usage.

Speciment and Patient Registration

From the 6th April 1984 the Medical Records Section took over the registration function which coincided with additional laboratories being brought online to the computerised system. Since this date the section has processed 15,000 request forms, an average of 210 daily, and approximately 50% of these are a new registration (UMRN issued).

Billing and Statistics

With the introduction of Medicare from the 1st February 1984, patient billing is confined to persons who are either ineligible under the Medicare provisions or involve a compensatory claim, i.e. Workers Compensation Act etc. Accounts are raised manually at 100% of the schedule fee in these instances.

Statistical information is more significant and is maintained to monitor utilisation variances and to evaluate the adequacy of compensatory revenue grants paid by the Commonwealth. In addition, extra patient categories are also captured from request forms which were redesigned in accordance with the amended Health Insurance (Pathology Services) Regulations.

During the period, 204,353 request forms were received by specimen reception, identified and distributed to the appropriate laboratories for testing.

Requests from the Special Treatment Clinics are not counted in this figure.

The work volume generated 32,652 chargeable items during the month of January, where patients were charged cumulative fees to the value of $438,558 and represented 59.3% of total referrals. Hospital service patient accounts represented 2,390 items or 4.3% which were recovered from the referring hospital and charged at a flat rate of $25 per request per laboratory. In the five (5) months since Medicare 226,915 test items have been identified as services, eligible under the Commonwealth/State Medicare Agreement and provided free of charge to patients. A comparison of non-chargeable requests for both periods is shown:

	1/1 - 31/1 %	1/2 - 30/6 %
Hospital Inpatient/Pensioner	17.8	N/A
Public Health Work	3.5	3.2
Special Treatment Clinic	3.2	2.4
Viral Cultures	3.3	2.8
Institutionalised Children	2.5	2.1
Referred Other Laboratories	1.6	0.4
Alcohol and Drug Authority	1.4	0.7
Prisoners	1.3	1.2
Others (including Family Planning, Womens Health Care, Staff Screening, Mortuary Cases, etc.)	0.9	0.6

Transport and Communication

A vehicle fleet of 38 is maintained and reviewed in accordance with the replacement criteria which has remained unchanged over the period. Records of vehicle utilisation and fuel consumption continue to be maintained and monitored.

Telex facilities have been installed at Kalamunda and Armadale Branch Laboratories with machines rendered surplus through computer conversions at the Central Laboratories.

COMPUTER SERVICES

The period saw continued development despite staff changes in the Laboratory Systems Section of Health Computing Services.

Hardware ordered from funds allocated in the 1983/84 budget arrived and installation into some laboratories carried out.

The major items consisted of Northstar Horizon computers for use in the State Health Histopathology Division and at Osborne Park Branch Laboratory.

Courses Attended/Visits

Mr. Willox attended a demonstration of LEX-11 and RPL software running on a PDP 11/70 at Royal Prince Alfred Hospital NSW in March 1984 whilst on a private visit.

Mr. Maddin and Mr. Zekulich attended a two week course on System Design conducted by Corporate Management in May 1984.

Mr. Willox and Mr. Langford attended a two day seminar on "Micro-computers for Data Processing Professionals".

Projects

The Section continued to handle small computing tasks for various departments, e.g. label printing, and provided advice and assistance to departments using the on-line systems or equipped with microprocessors or wordprocessors. Full participation in external and internal committees concerned with computer was maintained.

Combined Pathology Data Base

The system commenced operation in May 1984. Developmental work continued, associated with transfer of data from Cyber A to Cyber C and with historical data up-take. A re-assessment of the hardware requirement resulted in different equipment being ordered to that originally planned.

Clinical Immunology

The hardware has been delivered. An Assessment of the CBCS software is to be made for suitability for this department's needs.

Haematology

System enhancements have been implemented. An expansion to include bone marrows has been commenced and will be implemented in September. Programming on the Blood Bank system has commenced.

Serology

Work on System Internal Specifications was suspended in view of hardware uncertainties. A preliminary evaluation of the CBCS software was carried out. Implementation is now scheduled for early 1985 dependent on machine availability.

Pathology Billing

Considerable work occurred with the introduction of Medicare. Because of late decisions regarding Commonwealth funding, various alternatives had to be planned for. The resultant changes made substantial system changes necessary, which included cessation of billing and transfer of data, and archiving. It now provides statistical information for laboratory management and block grant.

Patient Request Registration

A preliminary study of requirements for the Specimen Registration and statistics was carried out and reported on. A working committee has been established to assist with detailed planning and implementation. Additional work, because of the pathology data base registrations, led to a reorganisation of the area.

Report Telexing

The system has been enhanced to enable report transmission to printers located in various areas in S.C.G.H. Biochemistry are now using this telex system with Toxicology and Microbiology ready to use it. On-line laboratories can now have reports telexed from the cyber data-base. Several suggested enhancements are being costed.

Cytogenetics

A microcomputer was installed in January and Computer Services are programming it to cytogenetics specifications.

Forensic Pathology

The funds allocated for a wordprocessor/data storage and retrieval system for this section were re-directed to pay for an independent consultancy project in overall laboratories computing.

3. TECHNICAL SERVICES

The division provides technical support services to both the State Health Laboratory Services and the Combined Laboratory Services, Queen Elizabeth II Medical Centre.

Animal House

Staff remains constant at six, three Technicians, one Senior Animal House Attendant and two Animal House Attendants. The General Assistant position was reclassified to Animal House Technician G-II-1/2.

During the period, animal house staff were involved in field trips to Rottnest Island. The staff provided support for the study of Salmonella in quokkas and reptiles on the island.

As there is still no satisfactory breed of rabbit available from the Animal Resources Centre, a rabbit colony has been maintained.

An increase in the use of mice for the detection of Naegleria fowleri was noted.

January to June 1983	280 mice used
January to June 1984	1200 mice used

Instrumentation

The annual safety and maintenance checks were commenced during the January to June period.

Workshop activity was as shown below:-

Workshop repairs	250
On site repairs	400
Service Agent calls	20
Warranty and contract calls	30
	700

Media

Plates poured	55,672
Tubes and bottles	833,193
Volume (litres)	24,323

Compared to the corresponding period of 1983, plate production showed a decrease, whilst the total volume and tubes and bottles production has increased. Production for a full twelve month period cannot be compared to a six month period because of the seasonal cyclical demand for culture media.

The fully automatic plate pouring system introduced at the end of 1983 has required only minimal routine maintenance to operate at full capacity.

Reagent Preparation

Production Volumes

Manual reagents	1,466 litres
Automation reagents	1,989 litres

The production volumes show an increase in the production of automation reagents. This increase was due to the reduction in reagents purchased from commercial sources. Substantial cost savings can be made by increasing the inhouse component of the production/purchase mix.

Conferences

Mr. P. McCartney :	Attended the 5th Biennial Conference of the Australian Animal Technicians Association 16-18th May, 1984 in Sydney.

4. MISCELLANEOUS

Library

The introduction of a monthly library newsletter (LABLIGHTS) since January this year was primarily aimed at the branch and country staff. It was hoped that by receiving a regular newsletter this would help overcome the restrictions placed upon staff, due to distance and journal circulation restrictions. The response to LABLIGHTS has been very good, by both metropolitan and country staff.

There has been a steady increase in reference enquiries, and in particular, for Medline searches.

Detailed cataloguing of the series collection has commenced, which will make these items more accessible. A complete list of these titles will be made available shortly.

Due to decreased staff levels in the library section, the librarian is now working at the State Health Laboratory library three days a week. The other two days (Tuesday and Thursday) are spent at the library of the State X-Ray Department. This situation will improve when the Library Assistant vacancies are filled.

In March, the librarian spoke to the Regional Technologists about their concerns relating to journal circulation and the Copyright Act.

Library Statistics:	January - June, 1984
Book Loans	78
Photocopies -	
To own staff	340
To other libraries	76
Inter-Library Loans	384
Reference Queries	432
Computer Searches	47

Quality Control

Monitoring of laboratory performance has been undertaken over the six month period. Corrective steps have been taken to ensure reliability of test results in each section and branch.

All areas have produced a satisfactory level of accuracy and precision in their diagnostic testing with some departments attaining high levels by world standards.

Fire and Safety

Staff training in evacuation, emergency procedure, and investigation of all laboratory accidents has been maintained. A serious incident has not occurred over the period of this report. Minor injury continues to make up the majority of accident report cases listed.

In-Service Training

Adequate staff competency has been achieved by 'on the job' training. Branch staff rely on movement of relief staff and their Regional Supervisor to impart technical developments to them. Whilst this arrangement is not ideal, a reasonable degree of standardisation in methodology has been achieved.

Pathnote Committee

Three Pathnotes have been published and two others have been approved for publishing during this period:-

Biochemistry	2
Haematology	1
Immunology	1
Microbiology	1

A complete revision of all published Pathnotes is being undertaken. The number of Pathnotes published to date is 202.

5. BRANCH LABORATORY SERVICES (TABLE 1B)

Workload

The total number of tests performed in Branch Laboratories for the six months period was 146,395 compared with a total of 150,387 for the corresponding period of 1983, a decline of 2.7%.

Accommodation

A new laboratory at Port Hedland was completed and occupancy took place late in May. This new facility is situated within the hospital and is central to theatre and ward blocks which makes for a more efficient service than previously when the laboratory was situated some distance away.

The Bunbury Branch is still experiencing space problems and a request has been made to relocate the Blood Bank at that hospital so that the laboratory can expand into the area now occupied by the Red Cross.

Equipment

An ABA 100 Biochemical Analyzer which was no longer required by the Toxicology section was installed at Derby. This brings to eight, the number of branches equipped with some form of biochemistry automation.

Bunbury, Albany, Geraldton and Kalgoorlie have Technicon R.A. 1000 Analyzers.

Derby, Bentley and Port Hedland have Abbott ABA 100 Analyzers and Osborne Park has a Gemini Centrifugal Analyzer.

Staff

1. Laboratory Assistants.

   Apart from normal changes due to resignations, long service leave, maternity leave and interlaboratory transfers no major changes took place.

2. Technologists.

   A proposal to transfer the technologist from Tom Price to Port Hedland prompted considerable reaction by residents of the area and as a result the transfer was not implemented.

Regional Technologists' Meetings

This was convened for the week commencing March 12th. A wide variety of subjects, both technical and administrative, were discussed. A further meeting in August/September is proposed.

6. COMBINED MICROBIOLOGY SERVICES

Conferences, Lectures and Tours

During the year the following international and national meetings were supported:

> N.H. & M.R.C. ad hoc Working Party of Arbovirus Laboratory staff, Canberra, February, 1984 was attended by Dr.Bucens.
>
> Annual meeting of Australian Society for Microbiology.
> Sydney, May 1984.
> Dr. Rich (President), Dr. Bucens and Mr. Riley attended.
>
> Microbiology Update, Royal College of Pathologists of Australasia, Sydney, 1984.
> Dr. Bucens attended and contributed a presentation.

Members of the Combined Microbiology Service participated in clinicopathological presentations locally and lecture to undergraduate and post-graduate medical students of the University of Western Australia and students of Microbiology at W.A.I.T.

Papers Published

Burke, V., Robinson, J., Cooper, M., Beaman, J., Patridge, K., Peterson, D. and Gracey, M.	:	Biotyping and Virulence Factors in clinical and environmental isolates of Aeromonas species; Applied and Environmental, Microbiology, May 1984.
Glasziou, D., and McAleer, R.	:	Cryptococcosis: an unusual avian source Med. J. Aust., 1984, Vol. 140, 447.
Riley, T.V., & Mee, B.J.	:	Heparinase production by Bacteroides species, Microbios Letters 1984 25 141-148.

CLINICAL MICROBIOLOGY SERVICE (TABLE IIA)

Blood Cultures

Number received	:	1,478		
Number contaminated	:	104	=	7.0%
Number from which significant organisms were isolated	:	157	=	10.6%

Predominant organisms isolated (82%)

1.	Escherichia coli	30	-	19%
2.	Staphylococcus aureus	27	-	17%
3.	Klebsiella pneumoniae	16	-	10%
4.	Staphylococcus epidermidis	16	-	10%
5.	enterobacter cloacae	8	-	15%

Cerebro-spinal Fluid

Number received	426
Number positive	1

Organisms isolated

1. Cryptococcus neoformans (see Mycology Report)

Urine Specimens

Number received	9,104		
Number infected	1,568	=	17.0%

Predominant organisms isolated (79%)

1.	Escherichia coli	736	=	47%
2.	Klebsiella species	179	=	11%
3.	Proteus species	190	=	12%
4.	Streptococcus faecalis	127	=	8%

Faeces Specimens

Number received	983

Pathogens isolated

1.	Clostridium difficile	53	=	5%
2.	Campylocater jejuni	6		
3.	Salmonella adelaide	1		
4.	Salmonella stanley	2		
5.	Salmonella typhi	1		
6.	Salmonella typhimurium	2		

Clostridium difficile toxin detected	58

Parasites identified

1.	Ancylostoma duodenale	4
2.	Endolimax nana	12
3.	Entamoeba coli	8
4.	Giardia lamblia	2
5.	Trichomonas hominis	1
6.	Trichuris trichiura	5

Wound Swabs

Number received	2,363		
Number from which significant organisms were isolated	1,120	=	47%

Predominant organisms isolated (68%)

1.	Escherichia coli	55	=	5%
2.	Klebsiella species	34	=	3%
3.	Proteus species	39	=	4%
4.	Pseudomanas aeruginosa	96	=	9%
5.	Staphylococcus aureus	473	=	42%
6.	Streptococcus pyogenes	68	=	6%

Sputum Specimens

Number received	3,012		
Number infected	519	=	17%

Predominant organism isolated (70%)

1.	Branhamella catarrhalis	39
2.	Haemophilus influenzae	123
3.	Klebsiella species	33
4.	Pseudomonas aeruginosa	76
5.	Staphylococcus aureus	41
6.	Streptococcus pyogenes	52

Chemotherapy

Antibiotic assays carried out with automated equipment

Gentamicin	1,955
Tobramycin	241
TOTAL	2,196

Bioassays of other antibiotics and antifungal agents including amphotericin B, 5-flucytosine, ketoconazole and miconazole	470
Quantitative Antibiotic Sensitivity Tests	3,500

TDX-fluorescence plarisation equipment was introduced in April for the rapid, accurate assay of gentamicin and tobramycin.

Gentamicin-resistant coliform organisms, including Klebsiella oxytoca, Escherichia coli, Proteus mirabilis and Klebsiella pneumoniae, were found in 9 patients from February to April. This was the first reappearance of these organisms since the multi-hospital Perth outbreak in 1979-1980.

Increasing resistance to contrimoxazole in coliform organisms was noted, mainly for Sir Charles Gairdner Hospital patients, during this half of the year.

Points of Interest

There were 58 isolates of Neisseria gonorrhoeae identified, with 5 strains producing beta-lactamase. Two isolates of Neisseria meningitidis were obtained from genital tracts.

INFECTION CONTROL SECTION (TABLE II A)

Methicillin-Resistant Staphylococcus Aureus (MRSA)

New isolates of MRSA were received from the following centres:

Darwin Hospital	29
Fremantle Hospital	0
Princess Margaret Hospital	4
Repatriation General Hospital	4
Royal Perth Hospital	10
Sir Charles Gairdner Hospital	1
State Health Laboratory Services	5

Gentamicin-resistant Gram-negative organisms at Sir Charles Gairdner Hospital:

Klebsiella pneumoniae	3
Klebsiella oxytoca	3
Escherichia coli	4

Points of Interest

The unit was involved in pyrogen testing for the Department of Obstetrics and Gynaecology at the King Edward Memorial Hospital.

Disinfectant tests (according to the Therapeutic Goods Act) were performed on 5 samples for private suppliers and the State Tender Board.

A new screening medium for MRSA, LGC medium, was tested and introduced in the Sir Charles Gairdner Hospital and State Health Laboratory Service Branch laboratories.

A total of 428 strains of MRSA (local and Darwin isolates), was used to compare LGC with mannitol salt agar plus methicillin. Isolation rates were superior after only 24 hours incubation, thus reducing the delay in waiting for a result. This is particularly important when a patient is being isolated.

Four samples of shoe disinfectants were submitted for testing to ascertain their effectiveness for use with hire-shoes. Bacteriological tests showed that 3 of the samples had reasonable activity against Staphylococcus aureus and Bacillus subtilis.

Samples of disinfectants from hairdressing salons were tested on behalf of a local health authority. Tests showed that many disinfectants were contaminated with bacteria and a significant proportion failed to show adequate antibacterial activity when tested against Staphylococcus aureus.

The nursery of Woodside Maternity Hospital was visited in response to a request to investigate an apparent increase in the incidence of Staphylococcus aureus isolation. There was no evidence of cross-infection between babies, mothers and nurses.

PHAGE TYPING/QUALITY CONTROL SECTION (TABLE II A)

Staphylococcus aureus phage typing

A total of 2,772 cultures (49,877 CWU) was typed during the six month period, an increase of 3% over a similar period in 1983.

Phage type 71

Twelve strains were isolated; this included 1 case of scalded skin syndrome, 2 isolates from umbilical swabs at a maternity hospital, 1 isolate from a hospital theatre and consequently from a theatre nurse, 2 cases of impetigo, 1 pustule isolate, and 1 isolate from an infected sandfly bite.

Other skin manifestations

One case of scalded skin sydndrome associated with phage type 54.

Phage type 80/81 (52/52A)

Eleven strains were isolated; 5 strains were obtained from nose swabs of nursery staff, 1 strain from a sink in the hospital's nursery, 3 isolates from eye swabs from babies, 1 from cerebrospinal fluid, 1 from a wound swab.

Other interesting cases

Food poisoning (type 53/83A) 2 cases (mother and child).

Methicillin-Resistant Strains of Staphylococcus aureus

Fifty-two strains from 44 individuals were received and typed where possible.

Travel and attendance at Congresses

Dr. Dorothy Perret was on leave from May to July 1984. She has been visiting staphylococcal laboratories in Europe and attended the International Symposium on Staphylococci and Staphylococcal infections, in Warsaw, Poland.

Quality Control

The quality control service produced and distributed organisms for identification and characterisation by the participating branch laboratories.

MYCOBACTERIUM SECTION (TABLE II A)

A total of 3,487 specimens was received for mycobacterial examination during the first six months of 1984. This represents 203,665 Canadian Work Units. Included are cultures referred for identification and drug sensitivity testing, slides for the microscopic examination of M. leprae and biopsies for dapsone resistance testing of M. leprae.

A further 12 specimens were submitted for Legionella examination (648 C.W.U.) All were negative.

There were 377 isolates of mycobacteria identified during this six month period from human, animal and environmental sources. The species isolated from these sources are summarized in tabular form.

M. tuberculosis was isolated from 32 new patients. There were 24 laboratory reported cases of pulmonary tuberculosis, 13 men (age range 21-81; mean age 52.8), and 11 women (age range 23-85; mean age 55.4). There were 7 cases of non-pulmonary tuberculosis, namely renal tuberculosis in a 40 year old man; septic arthritis of the ankle due to M. tuberculosis in an 82 year old woman; tuberculosis of the larynx in a 70 year old woman; tuberculous lymphadenitis in 3 men aged 21, 26 and 40 years; tuberculosis of elbow tissue in a 21 year old woman. There was 1 case of miliary tuberculosis in a 70 year old woman.

Isolations of other mycobacteria were similar to other years taking into account that we are only looking at a six month period: such organisms were isolated from 50 new patients during the six month period.

Leprosy

A total of 95 drug sensitivity tests were performed on human isolates during the first six months of 1984. All isolates were tested against streptomycin, isoniazid, ethambutol and rifampicin. In addition to these drugs, 38 isolates were also tested against para-amino-salicylic acid, prothionamide, cycloserine, thiacetazone, capreomycin and kanamycin. Of the 35 strains of M. tuberculosis tested, 4 strains showed primary drug resistance.

During the first six months of 1984, a total of 154 smears (46 slides) from 33 patients were examined for M. leprae using a modified Ziehl-Neelsen stain. Of these patients, 6 had smears positive for M. leprae and 1 patient was a new case. The new case was an Asian woman aged 78 years.

In addition to Split Skin Smear examination for M. leprae, 1 biopsy was received for dapsone resistance testing of M. leprae using the mouse foot pad inoculation technique.

Workload

Table 8 shows the monthly breakdown of specimens received and Canadian Work Units for both Mycobacterium and Legionella Sections. The total number of specimens received for both mycobacteria and legionella examination was 3,499 and the total number of Canadian Work Units 204,313.

Computerisation

The Mycobacteria Computer system was successfully introduced on the 1 August, 1983 and was designed to handle registration of specimens and reporting of results for all specimens except those for leprosy and legionella examination. Enhancements to the system to include both these areas are currently in progress. The system also produces management reports including monthly Canadian Work Unit Statistics and Infection Control Reports.

SPECIMENS RECEIVED JANUARY-JUNE 1984

Source	No. of Specimens
State Health Laboratory Services	1,758
Queen Elizabeth II Medical Centre - In-patients	1,480
Queen Elizabeth II Medical Centre - Out-patients	115
Referred from elsewhere and other requests	146
TOTAL	3,499

MYCOBACTERIA ISOLATIONS FROM ALL SOURCES JANUARY-JUNE 1984

(349 Isolations)

Human	349	
Animal	27	(M.avium 14, M.bovis 11, M.flavescens and M.scrofulaceum)
Environmental	1	(from waterbath, M. intracellulare)
TOTAL	377	

MYCOBACTERIA ISOLATIONS FROM HUMAN SOURCES JANUARY-JUNE 1984

(Including Referred Cultures)

Species	No. of Isolates
M. tuberculosis	137
Group I	
M. kansasii	12
Group II	
M. scrofulaceum	1
M. gordonae	10
M. flavescens	2
Group III	
M. intracellulare	182
M. terrae	2
M. gastri	1
Group IV	
M. chelonae subspecies abscessus	1
Unidentified Group IV	1
TOTAL	349

MYCOLOGY SECTION (TABLES II A, II B)

The Medical Mycology Section was located on the Queen Elizabeth II Medical Centre site during January 1984, facilitating the reception of specimens from the Sir Charles Gairdner Hospital and the collection of specimens from patients.

Workload

During the six months of 1984, 5,776 clinical specimens, with a work unit value of 374,815, were received. In addition to these specimens, 92 soil samples with a work unit value of 20,884 were examined for aerobic actinomycetes.

Superficial Mycoses

There were 175 superficial infections diagnosed in the first half of this year. Pityriasis versicolor predominated with 18 cases.

Cutaneous Mycoses

Six hundred and forty dermatophytoses were diagnosed in the first half of this year and as usual Trichophyton rubrum (308 isolates) was the predominant fungus recovered. Two patients had infections due to Trichophyton violaceum, one an aboriginal and the other from the north of the state with probable aboriginal contact. This fungus is not common in W.A. and is usually recovered from aboriginals recently arrived from South Australia or from migrants from central Europe and Africa.

In addition 242 yeast isolations were made from skin scrapings.

Ear Swabs

Twenty one isolations were made from ear swabs; four different Aspergillus species were responsible for 18 of these infections.

Vaginal, Cervical and Penis Swabs

Yeast isolations are common from these specimens and 464 infections were mainly due to Candida albicans. Prototheca wickerhamii was isolated from a penile infection.

Throat, Mouth and Oesophageal Swabs

Thirty positive cultures from these sites were all yeast infections.

Subcutaneous Mycoses

Pseudallescheriasis of the knee due to the fungus Pseudallescheria boydii was recorded in a 9 year old boy from Bunbury. After 4 months treatment the child had produced antibodies to his own isolate.

Pityrosporum orbiculare which is frequently a commensal on the skin was isolated on many occasions from the central venous catheter line of a 15 year old female with carcinoma.

Systemic Mycoses

Actinomycosis

There were two cases of actinomycosis of the jaw and three intrauterine device wearers were found to have associated actinomycotic filaments.

Aspergillosis

Four cases of aspergilloma due to Aspergillus fumigatus were recorded. Two females aged 78 and 61 years and two males 60 and 67 years. All grew this fungus from their sputum and had strong antibody responses from 2 to 5 precipitin bands, for this fungus.

Three cystic fibrosis patients had secondary lung infections involving A.fumigatus. One of these patients consistently had 3 different fungi in her sputum -A.fumigatus, A.terreus, Psuedallescheria boydii and also the aerobic actinomycete Streptomyces albeus.

A 62 year old male with a lung abscess had A.fumigatus in his sputum and 3 precipitin bands for this fungus in his serum. A 56 year old woman with right upper lobe collapse had A.fumigatus in several sputa and antibodies to this fungus.

Candidosis

Candida was recovered from oesophageal infections of two female patients, from the pharynx of one male and bronchial brushings from a 62 and a 54 year old female. This fungus was recovered from the post-operative abdominal abscess of a 55 year old male and C.parapsilosis from the subphrenic drain of a 73 year old female.

Cryptococcosis

Four cases of cryptococcosis were recorded. One in a 55 year old female with a right upper lobe mass and the other a 53 year old male with lymphoma who developed headaches. Both patients responded to antifungal therapy. Two patients from the Northern Territory had high titres against Cryptococcus neoformans, one patient having cryptococcal meningitis and the other cryptococcal pneumonia.

Histoplasmosis

Three patients had positive serology for this disease, one of these being a proven case of histoplasmosis.

Nocardiosis

Nocardia asteroides was isolated from a 59 year old male with tracheal stenosis, pulmonary hypertension, shortness of breath and cough, and from a 63 year old male with a localized pulmonary lesion.

PUBLIC HEALTH AND ENTERIC DISEASES UNIT (TABLES II A, II C)

Notifiable Diseases

Salmonella typhi	3
Salmonellosis	351
Shigellosis	104
Ancylostoma duodenale	64

A total of 43,185 specimens was examined by the four sections comprising the Public Health and Enteric Disease Unit during the six months January to June compared with 40,857 specimens during the first six months of 1983.

A total of 4,836 samples yielded pathogenic organisms and of these 1921 were derived from patients with enteric infections.

The Clinical and Parasitology Section showed a slight increase in specimens (2%) and the workload was further increased by the introduction of the routine examination of selected specimens for Cryptosporidium species. This protozoan has recently been established as the causal agent of diarrhoeal disease. Immigrant screening and follow-up studies of carriers remains an important function of the Clinical Section.

A further 7 cases of S.agona were reported in the first four months making a total of 22 cases in the Metropolitan and South West regions. Despite extensive monitoring and follow-up investigations the source of infection and mode of entry into Western Australia of this important international pathogen remains unproven.

A further 584 computer cards for the reporting of Salmonella, Shigella and Campylobacter cases on a state wide basis have been prepared and forwarded to the Australian Department of Health National Reporting Centre.

The Food Hygiene Section examined a total of 6,404 specimens during the January to June period representing an overall increase of 15% on the 1983 figures. The increase resulted from monitoring of goats' milk, take-away foods and dehydrated meals imported from Queensland.

The Food Hygiene Section continued the testing of samples submitted from the regular monitoring of the smallgoods, poultry and catering industries as well as foods produced locally, interstate and overseas.

The workload in the Waters Section has stabilized, however, redeployment of staff from other sections is still necessary during the peak period of the summer months.

The Environmental Section experienced a further decline of 7% in the number of samples tested during the first six months of 1984. This was mainly due to reduced monitoring of water catchment and Public Health Department monitoring of natural waters.

CLINICAL ENTERIC SECTION (TABLE II C)

A total of 354 Salmonella cases was recorded in Western Australia during the six months January-June compared with 366 cases for the same period in 1983. There were 54 serotypes implicated in human infections with four individuals having multiple infections.

The most common serotypes were: S. typhimurium (84 cases), S. saint-paul (27), S. muenchen (26), S. chester (23).

As experienced previously the most common serotype in the more populous metropolitan and south west regions was S. typhimurium with 55 cases.

Regional Distribution of Salmonella Cases - January-June 1984

	Metro.	S.W.	S.E.	Cent.	Pilb.	Kimb.	W.A. Total
Serotype cases	156	30	21	22	46	83	358
Multiple infections	2	-	-	1	1	-	4
Persons	154	30	21	21	45	83	354

Salmonella Food Poisoning Outbreaks

No major food poisoning outbreaks occurred during the January to June period; however, 7 more cases of S. agona were diagnosed making a total of 22 cases from September 1983 to April 1984. No food source for the outbreak has been proven.

There were also 9 small family associated incidents where follow-up investigations revealed other members of the family group to be infected with the same Salmonella serotype as the index case. The serotypes involved were S. adelaide (2 families), S. chester, S. havana, S. saint-paul (3 families), S. singapore and S. 4,12:d:.

Typhoid

S.typhi was diagnosed in three patients in the metropolitan area; they were:-

(1) a 47 year old seaman who had recently been in several Indian and South East Asian ports. The patient was hospitalised and the organism was isolated from blood culture.

(2) A 72 year old female who had holidays in India 9 months previously. This patient also had malaria and was considered to be a long term carrier.

(3) A 31 year old male traveller who 2 weeks previously had holidayed in India for 3 months. The patient was hospitalized and the organism was isolated from blood cultures and faeces. Shigella flexneri 2 and Giardia lamblia were also isolated from this patient.

Exotic Infections

Salmonella infections most probably acquired outside Australia by travellers or immigrants comprised 12 serotypes and involved 22 patients. Serotype totals and source of exposure are tabulated below.

S. anatum	3	S.E. Asia	S. london	2	S.E. Asia
S. bovis-	2	S.E. Asia	S. mbandaka	1	India
morbificans	1	India	S. meleagridis	3	S.E. Asia
S. derby	5	S.E. Asia	S. oranienburg	2	Christmas Island
S. eastbourne	1	India and	S. saint-paul	1	S.E. Asia
		S.E. Asia	S. seftenberg	1	Bali
S. livingstone	2	S.E. Asia	S. zanzibar	1	?

Shigella Infections

A total of 104 cases was diagnosed during the January to June period of 1984 compared with 241 cases for the same period in 1983.

An outbreak of Shigellosis commencing in February occurred in 3 institutions for handicapped children which involved 9 cases of Shigella flexneri II and 3 cases of Shigella sonnei. These children are residents and interchange between the 3 hostels. Kitchen and other staff members of the institutions were negative. Several of the children were parasitised with Giardia lamblia, Trichuris trichiura, Enterobius vermicularis and Hymenolepis nana and 1 was co-infected with S. litchfield.

Sh. boydii II was isolated from a 26 year old female traveller who had recently visited India.

Regional Distribution of Shigella Cases

SEROTYPES	Metro.	S.W.	S.E.	Cent.	Pilb.	Kimb.	W.A. Total
Sh. flexneri I	1						1
Sh. flexneri II	16	4	1	6	8	12	47
Sh. flexneri IV	2						2
Sh. flexneri VI	8	7		1	1	9	26
Sh. sonnei	10	1	4		3	9	27
Sh. boydii 2	1						1
Sh. dysenterae 2				1			1
SEROTYPE CASES	38	12	5	8	12	30	105
PERSONS	38	12	5	8	11	30	104

Campylobacter jejuni Infections

A total of 122 cases of campylobacter enteritis was recorded for the January to June period with 53% of cases originating in the metropolitan and South West regions.

Regional Distribution of Campylobacter Jejuni January - June 1984

	Metro.	S.W.	S.E.	Cent.	Pilb.	Kimb.	W.A. Total
Cases	34(58)	31(42)	18(13)	9(4)	8(11)	22(26)	122(154)

Figures in brackets are totals for January to June 1983.

Co-infection with other enteric pathogens included S. muenchen (3), S. typhimurium (2), S.orion, Shigella sonnei (2), Sh. flexneri II (4), Sh. flexneri VI (2), Aeromonas hydrophila (3) and Clostridium difficile.

Other Enteric Infections

Edwardsiella tarda was isolated from an 11 month male child from Kununurra.

Vibrio parahaemolyticus K22 (kanagawa positive) was isolated from a 70 year old male traveller who had recently visited Pataya Thailand.

PARASITOLOGY SECTION (TABLE II C)

A total of 797 identifications of enteric parasites was made in 719 individuals. The most common intestinal parasites throughout all regions were Giardia lamblia with 478 identifications and Hymenolepis nana with 139 identifications.

Ancylostoma duodenale 49 and Strongyloides stercoralis 32 were commonly identified in patients resident in the Kimberley region.

Regional Distribution of Parasites - January - June 1984

	Metro.	S.W.	S.E.	Cent.	Pilb.	Kimb.	W.A. Total
A. duodenale	13	1		1		49	64
A. lumbricoides	7						7
C. sinensis	2						2
E. vermicularis	5	4	1	1		1	12
G. lamblia	134	108	40	38	50	108	478
H. nana	22	19	25	9	19	45	139
S. stercoralis	11		1	1	6	32	51
T. trichiura	40	2			1		43
Degenerated larvae						1	1
PARASITE CASES	234	134	67	50	76	236	797
PERSONS	220	121	64	47	68	199	719

Parasites identified during routine screening of South East Asian immigrants comprised Giardia lamblia (18), Ancylostoma duodenale (11), Strongyloides sercoralis (7), Trichuris trichiura (31), Ascaris lumbricoides (6), Hymenolepis nana (3) and Clonorchis sinensis (1).

Clostridium difficile

A total of 103 cases was recorded for the period January to June 1984 of which 54 were found to have free cytotoxin in their faeces.

JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		TOTAL	
C.	Cyto.	C.	Cyto.	C.	Cyto.	C.	Cyto.	C.	Cyto	C.	Cyto	C.	Cyto
13	10	25	10	14	6	14	10	16	8	21	10	103(91)	54(43)

C. = Culture Cyto. = Cytotoxin

Figures in brackets are case totals for the previous six month period.

FOOD HYGIENE SECTION (TABLE II C)

The origin of samples tested for pathogens and numbers are shown in the following table.

Sample Origin	Samples	Positive
State Authorities	4,694	445
Local Authorities	864	86
Commonwealth Authorities	367	35
Other Authorities	286	77
Cultures (Private Laboratories)	193	190
TOTAL	6,404 (6,201)	833 (465)

Figures in brackets are totals for the previous six months.

Food Poisoning and Food Complaints

Seventy six cases of alleged food poisoning and food complaints were investigated by various authorities. No significant findings were recorded except that as in previous reports B. cereus was found in various foods usually containing rice as an ingredient.

Also 2 specimens, 1 of raw fish and 1 of raw prawns, were positive for Staphylococcus aureus.

As a result of investigations overseas, 20 samples of imported pasta were tested for Staphyloccus aureus; none were detected. Samples are being kept for possible future testing for Staphylococcus enterotoxin.

Food Monitoring

Mechanically Deboned Chicken

A total of 190 samples was tested of which 55 (29%) were positive for Salmonella. Serotypes were S. sofia 44, S. havana 5, S. muenchen 3, S. chester 1 and S. 4,12:d 1.

Poultry

From a total of 160 carcasses submitted and tested by routine techniques 69 (43% were found to be positive for Salmonella. Serotypes were S. sofia 24, S. infantis 37, S. anatum 7 and S. muenchen 2.

Imported Foods

A total of 1,054 samples was tested and of these 357 samples originated from interstate and 697 samples came from food imported from overseas (fish, fish products, coconut). The only significant findings were S. thompson from raw prawns and S. java from raw lobster.

Exports

Two hundred and four dairy samples were tested on behalf of the Department of Primary Industry. The samples comprised of powdered skim milk, yogurt, cheese and export whole milk.

Restaurants and Take-away Outlets

A total of 536 samples including 406 food samples was submitted by local authorities.

E. coli was isolated from ready to eat food on a number of occasions; one sample yielded 24,000 E. coli organisms per gram.

B. cereus was isolated from beef curry, raw chicken pattie, white sauce, coleslaw and potato salad. Staphylococcus aureus was isolated 59 times from a variety of samples. In one outlet 5 out of 7 Staphylococcus aureus isolations were of the same phage type, demonstrating cross-contamination.

Meat Smallgoods Monitoring

	Samples	Positive for Salmonella
Handwash tests	1,332	12
Equipment swabs	407	13
Raw product	160	38
Intermediate product	102	16
Final product	221	14
TOTAL	2,222	93 (4.2%)

The Salmonella serotypes isolated were S. adelaide 1, S. anatum 4, S. bovis-morbificans 3, S. chester 1, S. derby 31, S. give 1, S. havana 28, S. infantis 8, S. lille 1, S. livingstone 3, S. meleagridis 4, S. oranienburg 1, S. orion 1 and S. typhimurium 40.

Other Meats (Raw)

	Samples	Positive for Salmonella
Mutton-Lamb	66	-
Beef	80	30
Hamburger	33	5
Pork meats	81	41
TOTAL	260	76 (29.2%)

Serotypes were S. anatum 27, S. bredeney 1, S. derby 14, S. eastbourne 1, S. give 4, S. havana 15, S. infantis 2, S. litchfield 4, S. livingstone 9, S. muenchen 3, S. seftenberg 4, S. typhimurium 25 and S. 4,12:d 1.

Goat Milk

Six hundred and ten samples of goat milk taken at producer level were submitted by local authorities on behalf of the Public Health Department.

Results in the main were as previous findings and 10 samples showed Staphylococcus organisms, some in excess of 3,000 organisms per gram. B. cereus was isolated from 10 samples which had been delayed in transit and E. coli was detected in these samples to a level of 900 per gram.

Frogs' Legs

Five specimens of imported frogs' legs from Indonesia were submitted for testing by the Public Health Department. All 5 were positive for Staphylococcus aureus; 2 were positive for Salmonella, some being positive for multiple serotypes. The serotypes were S. abony 2, S. arizona 2, S. javiana 3, S. orientalis 1, S. stanley 1 and S. thompson 1 (the plate counts and coliforms were very high). The highest plate count being 2,000,000 and the highest coliforms being 110,000. All 5 samples were also positive for enterococci. The frogs' legs were being imported as a trial sample and we believe that the Public Health Department has rejected their further import.

Dehydrated Meals

One hundred and thirty samples of dehydrated meals were submitted by the Public Health Department after an alert from health authorities in the eastern states. Thirty of the samples (23%) were positive for Salmonella; the serotypes isolated were S. seftenberg 16, S. singapore 4 and S. 4,12:d 20. One sample yielded 3 serotypes, 8 samples yielded 2 serotypes and 21 samples yielded 1 serotype.

WATER EXAMINATION LABORATORY (TABLE II C)

Bacterial Investigations

	Surveillance Samples	Treatment-Control Samples
Bacteriological Samples 12,480		
Recreational waters	2,258	-
Supply Source to Consumer	4,142	6,080
Significant findings		
Tested for Salmonella	2,060	
Salmonella isolated from samples	58 = 2.8% positive samples	

17.2% of the samples from which salmonella was recovered satisfied the basic N.H. & M.R.C. indicator standards for drinking water.

Aeromonas Survey

This survey commenced 10 February 1984 involving the Metropolitan Water Authority (MWA), the Public Health Department, the Gastroenterology Department, Princess Margaret Hospital for Children and this laboratory. Three hundred and fifty one samples have been examined to date, Aeromonas hydrophila having been isolated on 95 occasions = 27% positive.

Examination for Amoebae

		Surveillance Samples	Treatment-Control Samples
Amoeba Samples	3,580		
Recreational waters		2,328	
Supply Source to Consumer		316	936
Naegleria Recovery			
Treated Recreational waters		34	
Supply Source to Consumer		20	46
Other Amoeba temperature range 35-43°C			
Treated Recreational waters		281	
Supply Source to Consumer		123	150

Significant findings

A further 8 Naegleria fowleri were identified in the backlog of isolates from 1983. The backlog of isolates has now been cleared. Naegleria fowleri has been identified in 5 samples collected in 1984, viz.

20 01 84 New Norcia - St. Bens. Ablution Water - Private Surface Source
07 02 84 Beverley, Public Works Department, Town Supply
15 02 84 Beverley Pool Supply - Public Works Department Town Supply
27 03 84 Bore Water, Metropolitan Water Authority, Water Ground Source
09 05 84 Toodyay, Public Works Department, Town Supply

Points of Interest

Ultraviolet sterilisation of drinking and bathing waters - this research project which had to be suspended on 28 November 1983, due to pressure of work and absence of staff in hospital, was completed in June 1984 - report in preparation. It is considered significant that laboratory findings demonstrated that Hartmanella vermiformis, a non pathogenic amoeba capable of rapid growth at elevated temperatures, was capable of completely masking the presence of Naegleria fowleri in the absence of active biocide.

Spa Pools

The majority of samples from indoor, heated spa and hydrotherapy pools are now submitted to investigation for Pseudomonas and Staphylcoccal counts in addition to the routine swimming pool investigation viz; Coliform counts total colony forming units per ml and recovery of free living soil and water amoebae at 35 and 43°. A mini survey in the city of Subiaco revealed high levels of Pseudomonas and Staphylococci in 2 bromine treated spas. It is anticipated that a Department of Health controlled survey of spa pools will commence in July 1984.

Taste and Odour Control, Metropolitan Water Authority

As part of the quality control programme this laboratory has examined samples from those metropolitan areas associated with low-chlorine high-taste levels with the object of recovering taste producing organisms. Whilst Pseudomonas have been isolated from some areas the presence of Aeromonas hydrophila is more common.

ENVIRONMENTAL SECTION (TABLE II C)

A total of 7,587 samples was examined of which 1,614 (21%) yielded Salmonella.

Livestock

Routine monitoring of live broilers at the 4 major poultry processing plants showed carrier rates that averaged 5% and ranged from 0-40%. S. infantis 63, S. sofia 13 and S. havana 1 were the strains isolated.

In addition, a survey of live broilers from all poultry farms serving one of the major poultry producers was undertaken. A total of 1,780 birds were swabbed and revealed an average carrier rate of 10% ranging from 0-55%.
S. infantis 122, S. sofia 6, S. typhimurium, S. 4,12:d 2 and S. anatum 1 were the strains isolated.

S. pullorum was isolated from ducks at a local poultry farm and subsequently from 1 of 130 chickens tested on the farm. These isolations of this major poultry pathogen represent the first positive findings in Western Australia of this serotype for over a decade.

Abattoir, Meat Process and Poultry Process Effluents

66% of abattoir effluents, 41% of poultry process effluents and 17% of meat process effluents yielded Salmonella whose serotype distribution followed established patterns. S. sofia, a recent arrival in Western Australia from the Eastern States, appears firmly established in the poultry industry accounting for 31 of the 68 isolations from this source.

S. agona was isolated from effluent collected at a country abattoir slaughtering cattle, pigs and sheep. Preventative measures are currently being implemented to prevent the spread of this major international pathogen.

Sewerage

S. agona, the predominant serotype in sewerage effluents in the latter part of 1983 was isolated from sewage effluents on only 2 occasions during the period January-June 1984. These were from a sewerage lagoon on Rottnest Island and from raw sewage at a metropolitan waste water treatment plant.

Following the identification of a chronic typhoid carrier in a metropolitan suburb, studies were undertaken to determine whether this serotype could be isolated from sewage lines fed by the house. S. typhi was isolated up to 2 km away at a pumping station, but was not isolated from the treatment plant located about 12 kilometres from the house.

A survey of sewage sludge destined for use as an ingredient of blended soils for commercial sale was undertaken by the Public Health Department. Thirty four (55%) of 62 samples were positive and gave 52 isolations of 16 serotypes. The predominant serotypes were S. agona 9, S. tennessee 9, S. orion 7 and S. havana 7 (S. orion is currently causing some concern in the metropolitan area with 7 human cases reported).

Animal Feeding Stuffs

A total of 47 (76%) meat meals yielded Salmonella comprising 77 isolations of 15 serotypes. However, Salmonella was detected in only 3 (2%) of 139 samples of finished feed.

S. kimberley, a serotype first identified in Western Australia, was isolated for the first time in kangaroo meat sold as pet food. In addition, S. sofia was isolated for the first time in pet food.

Natural Waters

The annual monitoring of sea water around coastal sewage outfalls, undertaken by the metropolitan water authority, showed that movement of viable faecal coliforms and faecal streptococci from the discharge point was not great and only 2 (1%) of 243 samples tested yielded salmonella (S. sofia 1, and S. orion 1).

Samples taken by the Swan River Management Authority of the Swan River after a period of heavy rain showed an unusually high incidence of Salmonella and faecal coliforms. Of 20 samples, 11 (55%) were positive for Salmonella, S. alsterdorf 1, S. bovis-morbificans 3, S. derby 2, S. havana 6 and S. typhimurium 1. This result may reflect run off from stock holding yards in the Midland area, either directly or via drains.

Water Supplies

A total of 24 (44%) of samples from catchment sumps and water storage tanks on Rottnest Island yielded Salmonella. S. adelaide 14, S. muenchen 6, S. newington 7, S. typhimurium 3 and S. wandsbek 4 were the major strains. S. agona was not detected in these samples.

Wildlife

In conjunction with the Department of Zoology, University of Western Australia, a study of tagged quokkas on Rottnest Island, commenced in settlement areas and at popular tourist sites where animals received regular handouts. A total of 629 quokkas were tagged and 161 (26%) were found to be excreting Salmonella. The major strains were. S. adelaide 31, S. chester 14, S. javiana 12, S. muenchen 30, S. orientalis 19, S. typhimurium 13 and S. wandsbek 13. This study will provide more precise information on the population ecology and epidemiology significance of Salmonella infections in quokkas frequenting areas used by the public and directly assist in public health and wildlife management strategies on the island. In related studies on the island, Salmonella was detected at high frequency in lizards captured in and around post chlorination water storage facilities.

SEROLOGY SECTION (TABLE II D)

Notifiable Diseases

Brucellosis	4	(chronic - includes 1 from Northern Territory)
Filariasis	1	(from Northern Territory)
Hydatidosis	2	
Leptospirosis	9	
Schistosomiasis	1	
Syphilis	136	
Typhoid	1	

New Equipment

1 Class II Biological Safety Cabinet.

New Procedures

Legionella

A less expensive Legionella IgM ELISA has been developed and is now in routine operation.

Treponema

A modification to the IGM-TPHA test has resulted in greater sensitivity and economy. The concentration step has been deleted from the method. This will result in the saving of some thousands of dollars per annum.

Re-organisation of the daily routine in the Treponemal Serology Laboratory has enabled results for specimens arriving from country centres to be reported the same day.

SEXUALLY TRANSMITTED DISEASES SECTION

Workload

Total number of specimens received	19,593
Total number Canadian Work Units	186,689

Staff

There has been no change to the staff of 2 Medical Laboratory Technologists and 1 Laboratory Assistant.

Activities

The investigation of the current levels of penicillin activity against Neisseria gonorrhoeae continues and these levels are reported under a national programme organised by Dr. J. Tapsall in Sydney.

Approximately 120 strains of local Neisseria gonorrhoeae are being sent to Dr. S. Bygeman in Sweden, who is to carry out a study of N. gonorrhoeae serotyping world wide.

A case of Granuloma Inguinale has been diagnosed in a patient referred to the clinic from Royal Perth Hospital.

Final year medical students have continued to visit the laboratory as part of their tuition in the V.D. Clinic; also a considerable number of nurses as part of their orientation prior to work in the North West.

Notifiable Diseases

Number of specimens examined for N. gonorrhoeae	:	18,591
Number of patients examined for N. gonorrhoeae	:	7,851
Number of patients positive for N. gonorrhoeae	:	424
% Positive patients		5.4%
Number of specimens examined for T. pallidium (D.G.I.)		145
Number of specimens positive for T. Pallidium		6
% Positive specimen		4.1%
Other examinations performed		857
Total number of isolations of N. gonorrhoeae	:	424
Number of beta-lactamase producing N. gonorrhoeae	:	28
Number in local patients	:	10
Number in local residents, contracted abroad	:	18

VIROLOGY SECTION (TABLES II E, II F)

Workload

The total number of specimens received by the Virology Laboratory during the first six months of 1984 was 27,757 which represents a 6.1% increase compared with the same period in 1983.

The percentage of positive diagnoses (by serological and isolation techniques) was 9.7%.

Respiratory Viruses

There have been no isolations of Influenza A or B viruses. Serology indicates that there has been some Influenza B activity in the community since March.

Parainfluenza 1 activity peaked in April and May with most cases occurring in the paediatric age group and presenting with croup.

The usual pattern of winter epidemic respiratory syncytial virus (RSV) activity occurring after a parainfluenza 1 virus peak is again apparent. There were 22 diagnoses of RSV infection made in June (mostly by virus isolation). As usual the infection presented mostly in babies with bronchiolitis. The serological diagnoses were made in adults with lower respiratory tract infections.

Since February there have been 34 isolations of rhinovirus. This is a much higher number than usual and reflects the outbreak reported throughout Australia. Many isolations originated from adults who presented to hospital with asthma precipitated by an upper respiratory tract infection.

Eight cases of infection due to Chlamydia psittaci were diagnosed between January and June and this appeared to represent a cluster of cases of psittacosis. Six of these patients were investigated in detail by a health surveyor, but no common source of the organism was discovered although all the patients had been directly or indirectly exposed to sick birds.

Arboviruses

Two patients were diagnosed as having Australian encephalitis due to Murray Valley Encephalitis virus, the first in March and the second in May. These were the first cases in Western Australia since the outbreak in 1981. The first patient was a part Aboriginal baby from Halls Creek. This child was extremely ill and was transferred to the Intensive Care Unit at Princess Margaret Hospital. After two weeks he was returned to Derby Hospital, but has been left with a marked neurological deficit. The second patient was a 24 year old Aboriginal stockman who had a very mild encephalitic illness from which he made a complete recovery.

In both cases the diagnosis was established by demonstrating specific IgM to MVE antigen in the serum and in the first case this antibody was also detected in the cerebrospinal fluid. The results were confirmed by neutralization tests. There was no serological activity demonstrated against Kunjin virus.

There has been very marked group A arbovirus (Ross River virus) activity throughout Western Australia and the Northern Territory as reflected by the number of clinical cases diagnosed in our laboratory. There have been 131 cases diagnosed between January and June compared with 103 January to December 1982 which was the previous highest number since testing began in this laboratory in 1975. The highest number of cases (38) occurred in February. Cases in Western Australia come from as far north as Derby and south as far as Esperance. There were 71 female patients and 59 male patients (one not stated). Forty six cases occurred in the 21-30 year age group, the youngest patient was 8 years and the oldest 84 years.

Herpes Virus

A total of 927 cases of herpes simplex virus infection was diagnosed (by electron microscopy, isolation in tissue culture or serology) compared with 720 for the first six months of 1983.

These cases included 2 involving neonates. One presented at 2 weeks of age with encephalitis and the second presented at a similar age with signs and symptoms consistent with a severe enterovirus infection. Both babies died - herpes virus particles were demonstrated in the brain of the baby with encephalitis and virus was grown from the liver, spleen and adrenal of the second child.

Herpes simplex virus type 2 (HSV 2) was isolated from the cerebrospinal fluid of a 48 year old female who was admitted to hospital with aseptic meningitis. A few days earlier her husband had had a genital lesion from which HSV 2 was isolated. Antiviral therapy was not used and the patient made a rapid, uneventful recovery.

One hundred cases of infectious mononucleosis due to EBV have been diagnosed compared with 43 for the same period of 1983. One case of EBV-encephalitis was diagnosed in an eleven year old child from Darwin. EBV infection was also diagnosed in a young woman during the first trimester of her pregnancy.

Varicella infections of interest have been chickenpox occurring in a young woman during the first few weeks of pregnancy and 2 patients with Ransay-Hunt syndrome. Acyclovir therapy was administered to one of these, but the treatment did not seem to shorten the period of incapacity.

Enteroviruses

A cluster of 8 cases of coxsackie B2 infections occurred in January followed by 4 during the next 2 months. The ages of the patients ranged from 11 days to 24 years and clinical presentations fell into 3 categories - chest pain; headache and fever with or without rash; gastroenteritis. The virus was isolated from the myocardium and liver of an 11 day old twin who died from heart failure. The mother had had a febrile illness at the time of delivery.

Hepatitis A and B

Fifty three cases of hepatitis A and 152 cases of hepatitis B infection were diagnosed. There were 200 cases of hepatitis A during the same period last year.

Electronmicroscopy

A total of 445 specimens was examined; 344 faecal specimens yielded 40 rotavirus and 13 adenovirus positive specimens; 90 specimens of vesicle fluids and skin scrapings yielded 26 herpes virus and 8 pox virus positive specimens. The positivity rate for this latter type of specimen has improved markedly since the 'Airfuge' has been used to centrifuge the material directly onto the grid.

Two pernasal aspirates were examined; 1 was positive for adenovirus.

Three urine specimens and 6 cerebrospinal fluids were examined, but all were negative.

Accommodation and Staff

The water virology section and all serology sections including hepatitis moved into the first floor accommodation during March. These new facilities allow much better work separation and facilities for fluorescent microscopy, etc.

Unfortunately there is still no increase in staff numbers in spite of a steady increase in specimen numbers. This puts an added strain on maintaining routine tests at a high standard and makes it impossible to achieve an acceptable amount of developmental work related to updating routine tests.

Research and Development

An application by Dr. M. Bucens, Dr. G. Shellam and Mr. G. Harnett to the Diabetes Research Foundation for a grant of $70,000.00 to study "Virus Susceptibility and Resistance Patterns of Skin derived Fibroblasts from Insulin Dependent Diabetics and their Families" was successful.

Fluorescent antibody (FA) tests to detect specific IgM to herpes simplex virus, varicella zoster virus, Ross River virus and cytomegalovirus have been developed and established into the routine system. Multi-chamber slides, with a monolayer of the appropriate cell line are inoculated with virus. When the cytopathic effect is visible the slides are fixed and tested by an indirect immunofluorescent assay. These tests are much more economical to use than the commercially available enzyme immunoassay (EIA) kits. The FA test also allows single sera to be tested as necessary rather than waiting for a suitable sized batch for EIA. Similar tests for mumps, respiratory syncytial virus and rubella are currently being developed.

Water Virology

An Amicon DC30 EM high volume ultrafiltration unit arrived earlier this year, and preliminary results have been promising.

The unit is permanently situated at the Canning Vale groundwater recharge site and is capable of processing a 400 litre water sample in approximately one-and- a-half hours. The DC30 is equipped with a portable 450 litre transport tank which is used to collect groundwater samples, and could easily be used to sample water anywhere within a reasonable distance of Canning Vale. Monitoring for viruses in effluent used in the groundwater recharge process is also continuing, although the sample size has been increased to 10 litres due to a reduction in the concentration of indigenous viruses coming from the Canning Vale treatment plant.

7. COMBINED CLINICAL BIOCHEMISTRY SERVICE (TABLE III)

The new laboratory has proven to be most satisfactory in many respects although the few alterations needed have not yet been completed. The conference room and library were very noisy until the end of June when lagging of extraction ducts was finally accomplished.

Service

The workload as measured in Canadian Work Units decreased marginally (by 1.5%) with the ratio of hospital to SHLS work unchanged.

A major change in the laboratory is the acquisition of a Technicon RA-1000 analyzer. It will be used as a back-up for the SMAC being capable of all the tests, although slower, and will provide most of the out-of-hours emergency needs. Using the RA-1000 in this way will give moderate cost saving compared with running the SMAC twenty-four hours a day.

The computer system continues to function well although the hardware is dated and we have been able to replace only three VDU's instead of the six needed. The need to expand the processing facilities is becoming more pressing and monthly routine maintenance interruption of on-line interrogation is a great nuisance. On-line reporting to all wards in SCGH is a desired goal.

We handed over the Digoxine assays to Clinical Pharmacology and Toxicology and are expanding our tumour marker programme.

Quality Control

The Australian General Chemistry Programme remained the main external QC used by both the combined laboratory and by branch laboratories. Some criticism of this scheme has been made both at central and country level and a change back to Wellcome QC has been suggested. Wellcome QC might be considerably more expensive than the Australian programme however and the change has been deferred for the moment. The combined laboratory has however taken up a place again in the Wellcome Immunoassay (1 and 11) as well as continuing with the Australian Immunoassay Programme. The latter is good but suffers greatly from lack of numbers.

Staff

Dr. John Beilby took up the Level 5 Scientific Officer appointment in January. Dr. Garcia-Webb has been on study leave since February, with Professor Marks at Guildford, Surrey. We have suffered from the loss of four half-time laboratory assistant posts and urgently need their replacement.

Teaching, Research and Development

A new group of students in the M.Sc. by coursework programme started this year. All in the previous group have been placed in employment or are doing further postgraduate work.

Research activities have continued in a number of areas and are fully reported in the University of Western Australia report on research.

Visitors and Visits

Dr. Dick visited laboratories in Semarang on a recent visit to Indonesia and invited Dr. Mulya Utama to visit Perth in return, which he did for two weeks in June. Dr. Mulya Utama is interested in immunoassays, particularly of the thyroid hormones and hopes that as a result of his experience he will be able to set up assays for T4, T3U and TSH shortly. He thinks that his will be the only public (non-private) assays for these compounds in Java.

A steady stream of local, interstate and overseas visitors are seen in the laboratory including the Raine visiting Professor - Dr. T.G. Redgrave, associate Research Professor of Medicine and Physiology, Boston University, U.S.A. and the Fulbright Scholar - Professor A. Kaufman from the University of New Mexico, U.S.A.

Publications

D.J. Nichol, D.H. Curnow and R.E. Davis : Standardization of the Colorimetric Assay for Glycosylated Hemoglobin. Clin.Chem. 29 (9), 1694-1695 (1983) (Letter).

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P. Garcia-Webb, A.M. Bonser, D. Whiting and J.R.L. Masarei : Insulin Resistance - A Risk Factor for Coronary Heart Disease? Scand. J. clin. Lab. Invest. 43, 677-685, 1983.

E.J. Keogh, E.R. Csillag, A.G.S. Tulloch, D. Lord, J.C. Dunn and D.S. Brown. : Impotence - A New Approach to an Old Problem. Diabetes Conquest pp. 4-6 (1983).

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Anne M. Bonser and Peter Garcia-Webb: C-Peptide Measurement: Methods and Clinical Utility. CRC Critical Reviews in Clinical Laboratory Sciences, 19 (4) 297-352, 1984.

J.P. Beilby, P. Garcia-Webb, C.I. Bhagat and A. Prins : Atypical Alkaline Phosphatase Isoenzyme in Serum from a Patient with Hodgkin's Disease. Clin. Chem. 30 (5), 800-802, 1984.

8. COMBINED UNIT IN CLINICAL PHARMACOLOGY & TOXICOLOGY (TABLE IV)

Introduction

The unit is a combined service of the State Health Laboratory Services and the Department of Pharmacology of the University of Western Australia. It provides both quantitative and qualitative analyses of drugs and other chemicals in biological specimens for both clinical and forensic purposes.

Staff

The position of pharmacologist which became vacant following the resignation of Dr. R.L. Nation in 1983 has not yet been filled.

Workload

As in previous years, the workload of the Unit has been quantified from the number of specimens received, from the number of analyses performed and from the number of Canadian Work Units produced.

The numbers of specimens received by the laboratory from January to June 1984 are summarized in Table IV. For comparative purposes, the corresponding figures for 1983 are also shown. Of the specimens received in the first 6 months of 1984, 63% were for clinical drug assays and numbers in this category increased by 22% over those recorded between January and June 1982. Requests for forensic analyses showed marked increases of 77% for drugs and 67% for alcohols.

The numbers of analyses performed for individual drugs or groups of drugs to June 1984 are shown. There were 13,738 analyses performed on the 13,010 specimens received by the laboratory; in some cases more than one analysis was required for any one specimen. Overall the total of 13,730 analyses performed in 1984 was 19% higher than the figure of 11,507 for the corresponding period in 1983.

NUMBER OF ANALYSES CONDUCTED FOR INDIVIDUAL DRUGS OR GROUPS OF DRUGS - JANUARY-JUNE 1984

DRUG OR PROCEDURE	JAN.	FEB.	MARCH	APRIL	MAY	JUNE
Acetylator Status	1	2	1	3	5	4
Alcohol (Clinical)	34	53	59	31	37	35
Alcohol (Forensic)	36	59	64	52	24	50
Amitriptyline+Nortriptyline*	23	21	31	14	35	39
Carbamazepine*	179	232	206	190	226	248
Carboxyhaemoglobin	21	0	1	1	6	1
Cholinesterase	61	38	106	64	57	43
Disopyramide*	2	2	4	1	3	11
Drug Screen	93	107	119	90	109	129
Drug Screen (Forensic)	10	18	26	19	6	16
Ethosuximide*	6	7	7	8	9	9
Imipramine+Desipramine*	42	27	46	34	39	45
Mexiletine*	36	18	26	14	22	31
Narcotic Scan (ADA)	408	358	350	368	598	516
Narcotic Scan (Other)	112	110	104	81	96	117
Nortriptyline*	2	1	4	1	5	1
Organochlorine	16	7	9	7	18	7
Paracetamol	22	12	6	13	9	11
Phenobarbitone*	100	108	84	89	139	102
Phenytoin*	327	376	371	275	395	342
Procainamide*	2	1	5	2	3	11
Quinidine*	17	29	24	30	37	46
Salicylate*	6	4	11	18	9	18
Specific (Forensic)	7	10	2	3	3	10
Theophylline*	319	340	313	440	439	503
Valproic Acid*	71	94	84	75	75	89
Miscellaneous (Clinical)	10	10	13	10	24	15
Miscellaneous (General)	6	8	10	2	10	9
Pharmaceutical Control	30	21	11	38	31	0
Redirected samples	29	28	25	29	24	24
Tocainide*	5	3	0	1	2	0
Digoxin*					60	427
Desipramine*					2	2
TOTALS	2,033	2,104	2,122	2,003	2,557	2,911

Combined Total : 13,730

*Drugs assayed under therapeutic drug monitoring scheme.

In 1984, the anti-epileptic drugs (carbamazepine, ethosuximide, phenobarbitone, phenytoin and valproic acid), the anti-asthmatic drug theophylline and narcotic scans together accounted for the majority of the analyses performed, being 33%, 17% and 23% respectively of the total assay count; these values were similar to those for 1983 (34%, 19% and 25%). Analyses for tricyclic antidepressants and cardiac antiarrhythmic drugs accounted for 3% and 6.4% respectively of the total number of analyses.

Of the total number of assays performed, 30.5% were requested from Sir Charles Gairdner Hospital and this again represented the major single source of drug assay requests. The other metropolitan teaching hospitals (Fremantle Hospital, Princess Margaret Hospital, King Edward Memorial Hospital and Royal Perth Hospital) together accounted for 9.7% of the total assays performed. The Alcohol and Drug Authority plus Cyrenian House, Mental Health Services (including Swanbourne, Graylands and Heathcote Hospitals) and the Occupational Health Department accounted for 23.3%, 5.5% and 0.8% respectively, of the total assays.

Workload was also measured in terms of Canadian Work Units. As part of regular updating procedures recommended by the Canadian Schedule, all Work Unit standards were again re-evaluated during the month of June. The new standards will not be introduced until late 1984, when the department is expected to receive extra computing hardware. There was a total production of 551,030 Canadian Work Units in 1984 which was 18.6% higher than the figure of 464,744 for the corresponding period in 1983.

In summary, the workload of the Unit, as measured by number of specimens received, number of analyses performed and number of Canadian Work Units produced has increased substantially in the first six months of 1984.

NUMBER OF CANADIAN WORK UNITS PRODUCED

MONTH	1982	1983	1984
JANUARY	69,090	65,081	86,350
FEBRUARY	76,084	76,161	90,087
MARCH	85,713	84,372	97,885
APRIL	76,657	77,522	83,764
MAY	82,875	82,943	92,632
JUNE	81,245	78,665	100,312
SUB TOTAL	471,664	464,744	551,030
JULY	85,795	86,771	-
AUGUST	88,738	92,853	-
SEPTEMBER	88,249	92,621	-
OCTOBER	76,151	83,535	-
NOVEMBER	77,495	88,780	-
DECEMBER	72,762	83,015	-
TOTALS	960,854	992,319	551,030

Therapeutic Drug Monitoring

Therapeutic drug monitoring services are offered for the drugs indicated in Table 2, and in total these assays accounted for 60% of all assays in the six months to June 1984. Assays for digoxin were taken over from the Department of Clinical Biochemistry in late May 1984, following the introduction of new analytical instrumentation in the Combined Unit.

Drug Screening

The screen procedures are designed to detect commonly prescribed or illicitly used drugs, primarily in patients suffering from known or suspected drug overdosage. During 1984, a total of 647 drug screens were performed, an increase of 11% for the corresponding period of 1983.

Narcotic Scans

Narcotic scans for the detection of narcotics and other drugs in urine have been performed by the Unit for a number of years. Of the narcotic scans performed, 79.8% were for the Alcohol and Drug Authority and 19.2% for Cyrenian House.

After Hours Assay Service

This service is provided for urgent clinical drug assays and drug screens. To the end of June 1984, a total of 988 assays were requested after hours (cf. 646 for the corresponding period in 1983), an increase of 53%. Again, 92% of all after hours work was for the Sir Charles Gairdner Hospital.

Quality Control of Clinical Drug Assays

As from January 1984, the Unit has participated in a wide ranging quality assurance programme run under the auspices of the American Association for Clinical Chemistry. Other quality controls were also done under the scheme run by the Royal College of Pathologists of Australia. The Unit performed well in both of these external quality control programmes. In addition, the in-house quality control programme has been continued and upgraded.

Computerization

During late 1983, considerable work was done to select a larger micro computer which is urgently needed to improve the storage and retrieval of assay data and which will be capable of being interfaced with various analytical instruments used in the laboratory. Unfortunately, administrative delays in 1984 have postponed purchase of the machine and the Unit is currently awaiting a report by an independent consultant who is to advise on integration of the Unit's computing requirements with the overall computing needs of the State Health Laboratories.

Equipment

The Unit now has two new Abbott TDX drug analysers, which have been of considerable assistance in coping with the steady increase in workload. These instruments, which work on a fluorescence polarisation principle were thoroughly tested in-house in 1983 and their performance and utility has been excellent.

Research and Development

1. Cardiovascular and pharmacokinetic aspects of the use of ranitidine in critically ill patients: This project has continued into 1984 in collaboration with Dr. T.E. Oh and Dr. W. Thompson of the Intensive Care Unit of the Sir Charles Gairdner Hospital.

2. Influence of corticosteroids on steady-state plasma salicylate concentrations: A joint project with Dr. J. Edelman who is a Consultant Rheumatologist at the Sir Charles Gairdner Hospital.

3. Studies on the narcotic abuse potential of the analgesic drug buprenorphine: A joint project with Dr. S. Seow and others from the Alcohol and Drug Authority which commenced in April 1984. The project has been entirely funded by the manufacturers of buprenorphine, Reckitt & Colman Australia, who have provided both technical assistance and reagents.

4. Development of new analytical methods: Assays for doxepin, desmethyldoxepin, amiodarone, desmethylamiodorone and bupivacaine have been established in anticipation of either routine clinical need and/or requirement for projected clinical research projects.

Future

There is still a need for some long-term decisions as to the volume and quality of the work expected from the Combined Unit. It should be noted that the 1981 report by the Public Service Board saw a strong case, both in terms of quality of work and cost effectiveness, in formally establishing the Unit as the State Centre for Clinical Pharmacology and Toxicology.

During the latter half of 1984, it is hoped that there will be sufficient time for consideration to be given to two matters of importance. These are:

(1) better communication and liaison with Branch Laboratories to assist in updating their capabilities; and

(2) planning of a series of visits by academic members of the Unit to regional hospitals to inform individual staff of the range of services offered by the Unit and to provide postgraduate education seminars in the therapeutic drug monitoring area.

Research Publications

D'Onofrio G.M.D., Levitt S., Ilett K. : Serum angiotensin converting enzyme in Crohn's disease, ulcerative colitis and peptic ulceration. Australian and New Zealand Journal of Medicine 1984; 14:27-30.

Nation R.L., Ilett K.F., Tjokrosetio R., Oh T.E., Cameron P., Thompson W. : Pharmacokinetics of cimetidine in critically ill patients. European Journal of Clinical Pharmacology 1984: 26:341-345.

Nation R.L., Hackett L.P., Dusci L.J., Ilett K.F. : Excretion of hydroxychloroquine in human milk. British Journal of Clinical Pharmacology 1984; 17:368-369.

Ilett K.F., Tjokrosetio R. : Stability of the alkaloid content of Ipecacuanha Syrup APF. Australian Journal of Hospital Pharmacy 1983; 13:121-123.

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Sanburg A., O'Shea J.P., Dusci L.: Chemical stability of lignocaine and glyceryl trinitrate infusion solutions. The Medical Journal of Australia 1984; 140:723.

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9. COMBINED CLINICAL HAEMATOLOGY SERVICE (TABLE V)

This six month period has seen continuing consolidation within the Haematology Department. Dr. D. Kennett has been reappointed as Head of the Service. Computerization of the Routine Haematology Laboratory introduced in late 1983 has generally been well accepted by laboratory staff though there is continuing frustration at the slowness of the response time from Cyber, especially at "peak periods". With further experience of the system, modifications have been introduced to programmes to increase efficiency. The main benefit from the system has been in terms of storage and retrieval of results. Programming for extension of the computer facility to blood bank is well advanced.

Service

The workload has continued to increase, both in terms of number of samples received, tests done and Canadian Work Unit equivalents produced. These results are summarized in the following table:

	Jan-June 1984	Jan-June 1983	% Increase
No. of samples received	52,307	49,061	6.6%
No. of tests done	158,456	145,608	8.8%
No. of Canadian Work Units produced	1,488,421	1,352,375	10.1%

The workload in May 1984 achieved a new record with substantially increased activity from all sources and in most sections of the Service.

For example, there was a 28% increase in work from S.C.G.H. inpatients. While it may be related to the introduction of Medicare in February 1984, no other reason for this marked increase is readily apparent. The section showing the most marked increase in workload during the last 2 years has been the blood bank, which is attributed to the increased admissions of acute trauma and increased surgical operations at this Centre since the opening of "G" block. Demands for emergency cross matching of blood have also placed a heavy burden on "out-of-hours" staff, and any further increase in "out-of-hours" work without improvement in the staffing situation will jeopardize the standard of work. Errors in blood banking resulting from pressure of work could have legal implications for the hospital. At present the Haematology Service has a total of 33½ staff (non medical).

Participation in the Royal College of Pathologists of Australasia Quality Assurance Programme has shown that good standards of results are maintained within the Haematology Service.

Transmission of all haematology test results to most country and peripheral suburban SHLS laboratories by telex via the ECS 500 word processor has functioned satisfactorily in efficient provision of results to requesting laboratories.

10. COMBINED CLINICAL IMMUNOLOGY SERVICE (TABLE VI)

Quality Control

This Department is concerned to develop methods for the assessment of quality control and of the clinical value of immunological tests. As a result of this interest this department through Mr. E. Bonifacio (a Senior Medical Technologist in Clinical Immunology) was involved in the organising of an Antinuclear Antibody workshop as part of the SEAPAL meeting held in Bangkok in January 1984. Further to this meeting this Department has been asked to organise a quality control programme involving all the major immunology laboratories in South East Asia and Pacific region. Assistant Professor Dawkins has been appointed to the relevant WHO Committee.

Conferences and Meetings

The Ninth International Histocompatibility Workshop and Conference was held in Munich and Vienna during May 1984. Assistant Professor Dawkins reported on the study of D-Penicillamine Induced Myasthenia Gravis. Dr. Christiansen, who is currently on sabbatical leave has spent the last four months working in Munich in invitation, reported on rheumatoid arthritis. The Department was also asked to report on the HLA DR antigens, DR4 and DR9, using the world data. All these reports will be published in the proceedings of the workshop and conference.

For the future, planning and organising is well under way for a meeting to be held in December 1984, part of which will be held on the Q.E. II campus. The title is "CLINICAL IMMUNOLOGY AND IMMUNOGENETICS 1984: DNA TO DISEASE". Up to twenty international and one hundred interstate visitors will attend. The meeting will cover such topics as "Clinical Immunology and Allergy", "Animal Immunogenetics", "DNA Probes in Practice" and "DNA to Disease". This meeting will be interesting and exciting for all those who attend.

Equipment

The Orthocytofluorograf 50L continues to play an important role in the diagnosis of leukaemia and lymphoproliferative diseases. This instrument has also been involved in the screening of patients for the diagnosis of Acquired Immune Deficiency Syndrome (AIDS).

Research Programme

The Department has again been recognised for its research especially in the immunology of muscle disease and rheumatoid arthritis and has attracted further funding from the National Health and Medical Research Council, West Australian Arthritis and Rheumatism Foundation and the Immunogenetics Research Foundation.

Workload

Still a disturbing factor for the year is the continual increase in the workload despite a policy of discouraging unnecessary tests. Even with these initiatives the workload continues to increase.

11. COMBINED ANATOMICAL PATHOLOGY SERVICE (TABLES VII A AND VII B)

The Combined Anatomical Services have moved closer toward achieving rationalization of technical and scientific support. There has been an interchange of medical laboratory technologists between the various services such as histopathology, electronmicroscopy and special techniques, and for staff cover during leave vacancies. The administration of non-clinical staff within the services has been centralized and we are working towards closer integration of support services in the areas of special techniques and the preparation of necropsy material. The former distinctions between staff of the institutions making up the services have become blurred and are gradually disappearing. With more formal ties being forged through developments within the Department of Health we anticipate still further rationalization in the coming year.

STATE HEALTH LABORATORY SERVICES (TABLE VII B)

The introduction of Medicare in February this year has not resulted in any major alteration in the total amount and style of work in this department, despite an initial rise in country surgical biopsies.

Dr. Gaman, pathologist at Osborne Park Hospital, has been on study leave during the year, and this has resulted in a proportionate increase in the number of surgical cases and frozen sections handled by the central laboratory staff.

Members of the technological staff have participated in exchange schemes involving the university and hospital department of the Queen Elizabeth II Medical Centre, allowing them to gain expertise in other facets of teaching and research such as Electron-Microscopy, Immunochemistry, Histochemistry and specialised embedding techniques.

Pathologists from the central laboratory have continued to participate in both undergraduate and post-graduate teaching as well as in supervision of the registrar in Forensic Pathology, Dr. G. Cadden.

Staff

Dr. A.N. Roberts arrived from the United Kingdom in February to take up his appointment as full-time pathologist.

Dr. G.R.H. Kelsall was appointed sessional pathologist in February and will remain until replaced by a full-time staff member.

Dr. A. Gaman has been awarded membership of the Royal College of Pathologists following successful completion of the final examination in Histopathology.

Equipment

A North Star wordprocessing system has been ordered for the department and will undergo installation and programming before being incorporated into the office for everyday use in telexing of results to various branch laboratories as well as for eventual linking to the Cyber C Database for storage and retrieval of records.

Publications

Rippey, J.J. and Rippey, M.E. (1984)	:	The epidemiology of malignant melanoma of the skin in South Africa. S.Afr. Med. J., 65, 595-598.

COMBINED CYTOLOGY SERVICE (TABLE VII C)

The first six months of 1984 have seen the relocation of the preparation laboratory to "J Block" and the microscopy section to a renovated area of "Watling Street". These moves have helped to centralise the work flow within the division.

Staffing

The present combined staff of 17, is insufficient for peak work flow and leave periods and results in undesirable delays in cervical screening reporting.

The unit's clinical supervision is provided by Professor Walters and Doctors Shilkin, Heenan, Sterrett and Whitaker.

Administration

The introduction of the Patient Master Index (PMI) has by virtue of its structure and implementation, put further pressure on the technical and in particular, the clerical staff. This is having an adverse affect on work flow and at times is seriously affecting staff morale. The heavy workload in the service and the introduction of new technology warrant the appointment of a further clerical person in cytology.

Workload

The comparison of the figures for similar periods in 1982 and 1983, shows a significant increase in the overall total recorded for 1984. The workload units for the same period are also included.

There has been a significant increase in the number of abnormal cytology specimens reported in 1984 when compared to the same period in previous years.

Year	No. Abnormal Jan-June	Total Abnormals Jan-Dec.
1982	682	1434
1983	960	1794
1984	1,081	

Abnormal cytology cases require more time per case at all levels of interpretation and reporting.

The number of aspiration cytology cases for 1984 shows a similar increase when compared to previous years.

Year	Total Aspiration Cases	
1980	Jan-Dec	380
1981	Jan-Dec	459
1982	Jan-Dec	547
1983	Jan-Dec	626
1984	Jan-June	362 (Prospective tally = 724)

Aspiration cytology is perhaps the most time consuming area of cytology and it is a technique which is being used with increasing frequency.

12. FORENSIC SERVICES

Forensic Pathology

STATISTICS FOR CORONER'S AUTOPSIES

(for six months ended 30th June, 1984)

Total number of post mortem examinations	642
Total number of bodies admitted	818

Breakdown of Types of Deaths

Sudden Death	438
Suicide	101
Homicide	14
Traffic Accidents	83
Industrial Accidents	6
	642

Staff Changes

Dr. Pocock, Forensic Pathologist, attended the Asian Pacific Police Surgeons' Conference in Melbourne from the 13th to the 18th of February, and delivered a paper on "Measurement of Stress in Police Officers".

A successful short-term exchange of Registrars took place between this Department and the Department of Anatomical Pathology, Royal Perth Hospital. This gave Dr. Cadden valuable experience in Surgical Pathology in another institution and afforded two Royal Perth Hospital Registrars an opportunity to complete their required training in Forensic Pathology in this Department.

Teaching and research activities continued.

There has been a steady increase in the Department's involvement in "bereavement counselling" and support. In common with similar departments elsewhere in the world, individual cases of public interest are making disproportionate demands on the time of practitioners here with increasingly complex preliminary hearings, pre-hearing and pre-trial conferences and consultations.

FORENSIC BIOLOGY

Workload

The total number of cases received from the Police Department and other authorities increased by 42%, compared to the first six months of last year.

Samples of meat and fish for species identification remained at approximately the same level.

Activities

The section gave lectures and demonstrations to groups of detectives on three occasions during the six month period.

There have been no changes to staff, accommodation or equipment in this Section.

Statistics for Six Months from 1st January 1984

Total C.I.B. cases	170
Miscellaneous	15
Total Cases	185
Total items received	1,676
Meat samples	147
Fish samples	19
Alcohol Kits	272

13. CYTOGENETICS UNIT

Workload

1130 specimens were received. This represents a 9.6% increase over the previous year's workload. A total of 565,000 Canadian Work Units was reported.

Equipment

An NEC advanced personal computer was received in April 1984. Data management systems are not yet operational and their implementation will depend on the amount of programmer support available.

Staff

Staffing has remained unchanged despite requests for restructuring and increases in the number of technologists. The technologist in charge is on long service leave and this has caused even further pressures due to the lack of special expertise in the area of tissue culture. In order to maintain standards in the laboratory, the following steps have had to be taken:-

1. All research and developmental work has ceased from 1st June, 1984 and the Level 4 Technologist formerly undertaking this work has been redeployed on routine tissue culture.

2. Necropsy work (stillbirths, abortion specimens) involving tissue culture is no longer being done.

3. Requests for survey work and the application of new cytogenetic techniques in areas other than clinical usage are being refused.

4. Guidelines for referral of patients for pre-natal cytogenetic diagnosis are being applied more stringently.

These moves have naturally caused some complaint from referring clinicians but are the only options available with the prevailing limitations on increase of staff

Research and Development

1. Clinical Laboratory

Chorionic villus biopsy with analysis of chromosomes from direct preparations has been developed to a base level.

2. Research Laboratory

Cancer Cytogenetics

This involved a continuation of cytogenetic work on peritoneal washings and ascitic fluids taken from patients at King Edward Memorial Hospital for the 4 month period 2nd February - 31st May. Forty-four samples were received and examined cytogenetically. Chromosome studies were done on a blood sample taken from one of these patients.

Fragile X Blood Tests

Sixty-two blood samples from patients were cultured and the chromosomes examined for the fragile X. One new case was detected.

Amniotic Fluid Cell Cultures

Since the beginning of June, 12 amniotic fluid samples for cytogenetic study have been received.

Conference Attended

In May, Miss Jenkyn, the technologist in charge attended the annual meeting of the Human Genetics Society of Australasia which was held in Lorne, Victoria, over a 4 day period.

Publications

Bell J., Pearn J., Bowling F., Cohen G., Ford J., Halliday J., Martin N., Mulcahy M., Purvis-Smith S., Sutherland G. : Utilization of pre-natal cytogenetic diagnosis in Australia.

Paper read at Eighth Annual Scientific Meeting of the Human Genetics Society of Australasia, Melbourne, May 1984.

Yovich J.L., Stranger J.D., Grauaug A., Barter R.A., Lunay G., Dawkins R.L., Mulcahy M.T. : Monozygotic twins from in vitro fertilization. Fertility and Sterility 1984: 41: 833-837

TABLE 1 A

CENTRAL AND COMBINED LABORATORIES (INCLUDING A SUMMARY)

SPECIMENS ANALYSED AND AUTOPSIES PERFORMED

For the 6 Months Ended 30 June, 1984

	1984	1983 6 months Pro rata	% Change
Clinical Bacteriology	31349		
Virology	27757		
Mycology	5776		
Mycobacteriology	3499		
Sexually Transmitted Diseases	19593		
Clinical Enteric Section	6726		
Parasitology	6408		
Foods	6404		
Waters	16060		
Environmental	7587		
Phage Typing	2772		
Cross Infection	10748		
Serology	23508		
TOTAL MICROBIOLOGY	168187	165920	+ 1.4
Biochemistry (including Radioisotopes)	104015		
Toxicology	13010		
Haematology	52307		
Cytogenetics	1130		
Histopathology	13749		
Cytology	14935		
Autopsies	675		
TOTAL PATHOLOGY	199821	187813	+ 6.4
CENTRAL LABORATORIES	368008	353733	+ 4.0
BRANCH LABORATORIES	146395	149068	- 1.8
GRAND TOTAL	514403	502801	+ 2.3

TABLE 1 B

STATISTICS - BRANCH LABORATORIES

SPECIMENS ANALYSED

For the 6 Months Ended 30 June, 1984

LABORATORY	1984	1983 same period	% CHANGE
ALBANY	7395	9428	- 21.6
ARMADALE	3386	3143	+ 7.7
BROOME	2929	2702	+ 8.4
BENTLEY	7076	8425	- 16.0
BUNBURY	8620	9629	- 10.5
BUSSELTON	4284	4075	+ 5.1
CARNARVON	4274	4469	- 4.4
COLLIE	2747	2489	+ 10.4
KARRATHA/NICKOL BAY	4194	3502	+ 19.8
DERBY	9710	10543	- 7.9
ESPERANCE	3150	2864	+ 10.0
GERALDTON	10251	10596	- 3.3
KALGOORLIE	10394	10849	- 4.2
KATANNING	2783	2086	+ 33.4
KALAMUNDA	3529	3124	+ 13.0
MANJIMUP	5499	4916	+ 11.9
MEEKATHARRA*	364	-	
MERREDIN	3683	4458	- 17.4
NARROGIN	5268	5336	- 1.3
NEWMAN	169	224	- 24.6
NORTHAM	3977	4225	- 5.9
OSBORNE PARK	8318	8399	- 1.0
PINJARRA	5536	4958	+ 11.7
ROCKINGHAM	7531	7021	+ 7.3
PORT HEDLAND	7856	8905	- 11.8
SWAN DISTRICTS	6124	5874	+ 4.3
TOM PRICE	1540	1723	- 10.6
WYNDHAM	3959	4208	- 5.9
WANNEROO	1849	2216	- 16.6
TOTAL	146395	150387	- 2.7

*Included in Bentley work statistics until collection service commenced from 30 January, 1984.

TABLE II A

COMBINED MICROBIOLOGY SERVICE

WORK STATISTICS

For the 6 Months Ended 30 June, 1984

SPECIMENS				CANADIAN WORK UNITS	
		Total	% SCGH	Total	% SCGH
Clinical Microbiology	S.C.G.H.	22898	73	638763	68
	S.H.L.S.	8451		297595	
	TOTAL:	31349		936358	
Infection Control	S.C.G.H.	6786	63	121198	61
	S.H.L.S.	3962		78174	
	TOTAL:	10748		199372	
Mycobacteria	S.C.G.H.	1606	46	90567	44
	S.H.L.S.	1893		113746	
	TOTAL:	3499		204313	
Mycology	S.C.G.H.	815	14	111186	30
	S.H.L.S.	4961		263629	
	TOTAL:	5776		374815	
Phage Typing	S.C.G.H.	699	25	11893	24
	S.H.L.S.	2073		37984	
	TOTAL:	2772		49877	
Public Health:					
Clinical Enteric		6726		496362	
Environmental		7587		304178	
Foods		6404		213810	
Parasitology		6408		128160	
Waters		16060		317920	
	TOTAL:	43185		1460430	
S.T.D. Laboratory		19593		186689	
Serology	S.C.G.H.	908	4	16091	6
	S.H.L.S.	22600		265910	
	TOTAL:	23508		282001	
Virology	S.C.G.H.	2020	7	131474	
	S.H.L.S.	25737		2154899	
	TOTAL	27757		2286373	
TOTAL		168187		5980228	

TABLE II B

MYCOLOGY - SPECIMENS

For the 6 Months Ended 30 June, 1984

TOTAL Specimens	5776
TOTAL Specimens Positive	2065
% Positive Specimens	35.8
TOTAL Skin Scrapings	3101

TABLE II C

PUBLIC HEALTH ENTERIC DISEASES UNIT - SPECIMENS and CWU

For the 6 months Ended 30 June, 1984

LABORATORY SECTIONS	SPECIMENS	STATE PHD/SHLS	COMMON-WEALTH	LOCAL HEALTH	MWSSD	CTWS	PUBLIC HOSPITAL	PRIVATE SERVICE	OTHER	POSITIVE FOR PATHOGEN	TOTALS SPECIMENS	TOTALS CWU
CLINICAL ENTERIC BACTERIOLOGY SECTION	Human faeces	5437	604	411			1	22		797	6475	465997
	Cultures referred (Human)	129	-				40	82		223	251	30365
	TOTAL	5566	604	411			41	104		1020	6726	496362
PARASITOLOGY SECTION	Faeces	6395								713	6395	
	Skin Scrapings	4								-	4	
	Parasites for Ident.	9								5	9	
	TOTAL:	6408								718	6408	128160
FOOD HYGIENE SECTION	Foodstuffs	4694	367	864					479	832	6404	
	TOTAL:	4694	367	864					479	832	6404	213810
WATERS SECTION	Water Supp.(distrib.)	424	1005	2559	4459	1964				313	10411	
	Bores and wells	3	36	271	415	37				65	762	
	Reservoirs and tanks	8	15	137	26	115				19	301	
	Swimming pools	309	62	4215	-	-				315	4586	
	TOTAL:	744	1118	7182	4900	2116				712	16060	317920
ENVIRONMENTAL SECTION	Sewerage,Water & drains	379	28	185	563	2		4		212	1161	
	Abattoir & meat process	520	-	52	18	-				263	590	
	Natural waters & soil	733	-	703	409	12				78	1857	
	Water catchment & supply	66	2	5	892	4				181	969	
	Animals	2594	-	15	19	-				519	2628	
	Cultures referred (Env.)	75	-	-	-			301	6	361	382	
	TOTAL:	4367	30	960	1901	18		305	6	1614	7587	304178
	GRAND TOTAL	21779	2119	9417	6801	2134	41	409	485	4896	43185	1460430

TABLE II D

SEROLOGY - SPECIMENS

For the 6 Months Ended 30 June, 1984

TEST CATEGORY	SPECIMENS
Treponemal	19848
Bacterial/Rickettsial	1511
Parasitic	785
Hormone/Miscellaneous	1364
TOTAL	23508

TABLE II E

VIROLOGY - SPECIMENS

For the 6 Months Ended 30 June 1984

SPECIMENS RECEIVED	S.C.G.H.	OTHERS	TOTAL
Alimentary Tract	15	779	794
C.V.S.	1	5	6
C.N.S.	39	518	557
Respiratory Tract	102	970	1072
Skin	31	860	891
Eye	26	316	342
Urogenital System	465	11015	11480
Other	19	267	286
Blood/Serum	1322	11007	12329
TOTAL SPECIMENS	2020	25737	27757

TABLE II F

VIROLOGY - TESTS

For the 6 Months Ended 30 June 1984

TESTS	CANADIAN WORK UNITS
Electron Microscopy	12428
Virus Isolation	719072
Chlamydia Isolation	829710
Rubella Antibody	191022
Ross River Virus Antibody (HI)	51240
MVE/Dengue Antibody (HI)	4410
Virus Serology (CFT)	211200
Neutralization Tests	
Legionella ELISA	
Other FA	3100
EBV FA/PB + IgM	100030
CMV ELISA (IgM)	18361
Hepatitis A Antibody	30675
Hepatitis B (HB_sAg) PHA	2793
Hepatitis B (HB_sAg) EIA	72148
Hepatitis Anti-HB_s	30208
Hepatitis Anti-HB_c	9976
TOTAL WORK UNITS	2286373

TABLE III

COMBINED CLINICAL BIOCHEMISTRY

CANADIAN WORK UNITS

(For the 6 Months Ended 30 June 1984)

	Units	% Requested
Sir Charles Gairdner Hospital		
In-patients	850196	
Out-patients	327136	
SUB TOTAL S.C.G.H. :	1177332	63.8
State Health Laboratory Services	569949)	36.2
Commonwealth Instrumentalities	12072)	
Surveys, Research etc.	84843	
TOTAL REQUESTED :	1844196	100.0
Standards, Quality Control etc.	522839	
Work Units Technical	2367035	
Development	205296	
TOTAL :	2572331	

TABLE IV

COMBINED CLINICAL PHARMACOLOGY & TOXICOLOGY

SPECIMENS

For the 6 Months Ended 30 June 1984

	1984	1983 (Same Period)	% Change
CLINICAL			
Drugs	8210	6755	+ 21.5
Alcohol	208	154	+ 35.1
Pesticides	431	428	+ 0.7
Narcotics	3205	2956	+ 8.4
Miscellaneous	403	286	+ 40.9
FORENSIC			
Drugs	270	153	+ 76.5
Alcohol	283	170	+ 66.5
TOTAL :	13010	10902	+ 19.3
CANADIAN WORK UNITS :	551030	464744	+ 18.6

TABLE V

COMBINED CLINICAL HAEMATOLOGY

STATISTICS

For the 6 Months Ended 30 June 1984)

	Specimens	%	cwu	%
Sir Charles Gairdner Hospital (S.C.G.H.)				
In-patients	27227		801241	
Out-patients	13359		204094	
SUB TOTAL S.C.G.H.	40586	77.6	1005335	75.3
State Health Laboratory Services (S.H.L.S.)	10098		249242	
S.H.L.S. Surveys	474		18630	
University of W.A.	-		-	
Other Sources	1149		61617	
TOTAL REQUESTS :	52307	22.4	1334824	24.7
Quality Control etc.	-		153597	
TOTAL :	52307		1488421	

TABLE VI

COMBINED CLINICAL IMMUNOLOGY

CANADIAN WORK UNITS - STATISTICS

For the 6 Months Ended 30 June 1984

	UNITS	%
Sir Charles Gairdner Hospital	276684	56.1
State Health Laboratory Service	216284	43.9
TOTAL REQUESTED	492968	
Quality Control etc.	116308	
TOTAL :	609276	

TABLE VII A

COMBINED ANATOMICAL PATHOLOGY SERVICE

WORKLOAD

For the 6 Months Ended 30 June 1984

HISTOPATHOLOGY	CASES	%	C.W.U.	%
Hospital & University Pathology Service (S.C.G.H.)	4372	30.4	634235	40.8
State Health Laboratory Services (Inc. Autopsies)	10019	69.6	918911	59.2
TOTAL	14391		1,553,146	

TABLE VII B

HISTOPATHOLOGY & MORBID ANATOMY

STATE HEALTH LABORATORY SERVICES - SPECIMENS

For the 6 Months Ended 30 June 1984

Autopsies	
Central	642
Bunbury	33
Osborne Park	-
TOTAL AUTOPSIES	675
Surgical Biopsies	
Central	9377
Bunbury	2018
Osborne Park	-
TOTAL BIOPSIES	11395
Blocks Cut (Autopsies)	
Central	8631
Bunbury	319
Osborne Park	-
TOTAL BLOCKS CUT (AUTOPSIES)	8950
Blocks Cut (Biopsies)	
Central	20030
Bunbury	3340
Osborne Park	-
TOTAL BLOCKS CUT (BIOPSIES)	23370
Frozen Sections	
Metropolitan	162
Bunbury	11
Osborne Park	-
Geraldton	-
TOTAL FROZEN SECTIONS	173
Seminal Analyses	259

TABLE VII C

COMBINED CYTOLOGY SERVICE

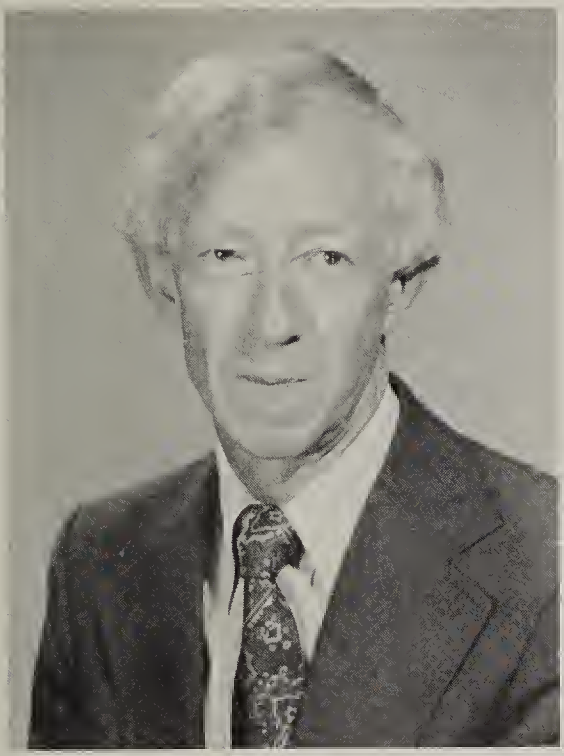
WORKLOAD

For the 6 Months Ended 30 June 1984

CYTOLOGY	CASES	%	C.W.U.	%
Hospital & University Pathology Services (S.C.G.H.)	2837	19.0	239986	31.0
State Health Laboratory Services	12098	81.0	533182	69.0
TOTAL	14935		773168	

Appendix XV

STATE X-RAY LABORATORY - PHYSICS DIVISION

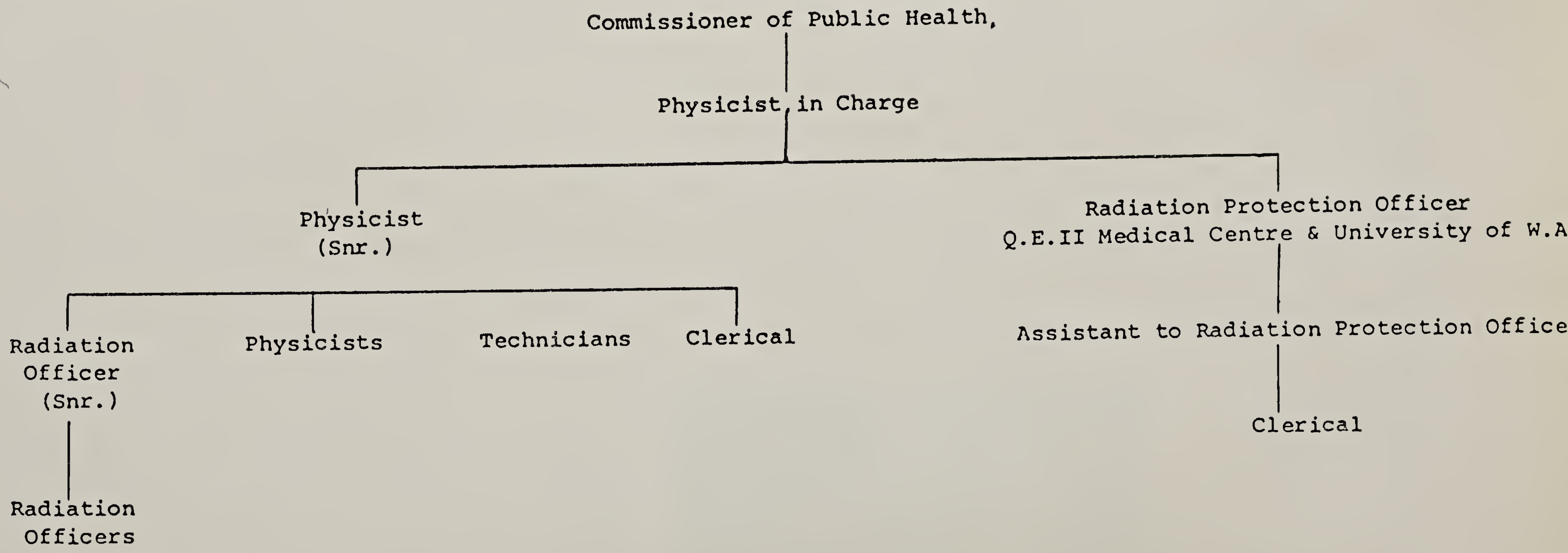


B.E. King,
M.Sc., B.Sc.
Physicist in Charge

SENIOR STAFF

Physicist in Charge :
Mr. B.E. King
Physicist (Senior) :
Dr. B.M. Hartley
Radiation Protection Officer :
Mr. L.M. Davies
Radiation Officer (Senior) :
Mr. B.J. Cobb
Administrative Assistant :
Mr. A.R. Turner

STATE X-RAY LABORATORY, PHYSICS DIVISION - ORGANIZATION CHART


Commissioner of Public Health,
Physicist in Charge
Physicist (Snr.)
Radiation Protection Officer
Q.E.II Medical Centre & University of W.A
Radiation Officer (Snr.)
Physicists
Technicians
Clerical
Assistant to Radiation Protection Office
Clerical
Radiation Officers

STATE X-RAY LABORATORY - PHYSICS DIVISION

INTRODUCTION

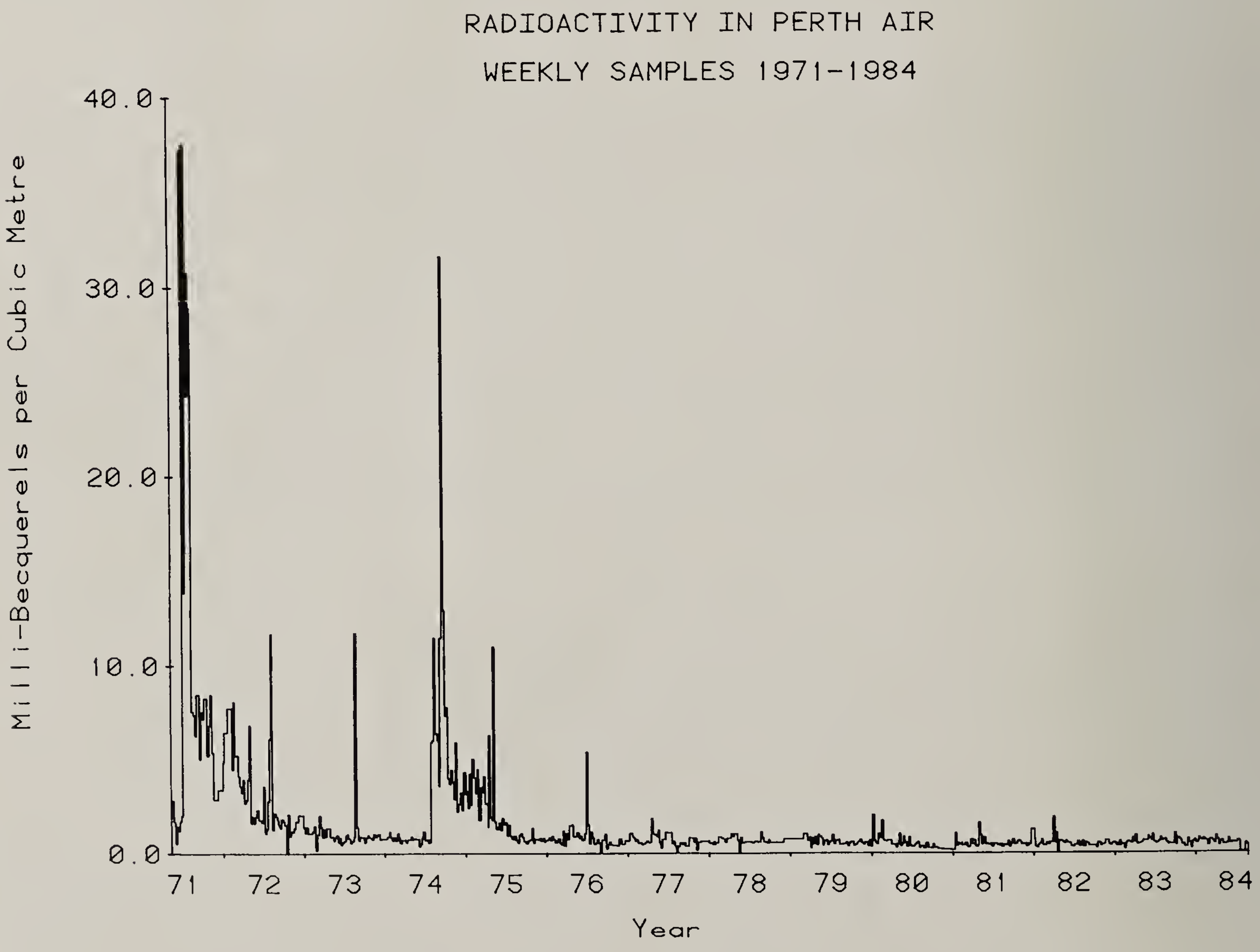
The Physics Division of the State X-Ray Laboratory is the branch of the Public Health Department which is concerned with radiation safety both in the workplace and the population at large. The Division began as an identifiable organisation in 1963 when a Physics and an Engineering Division were created in the State X-Ray Laboratory, a branch of the Medical Department. The Physics Division began with 3 officers and shared clerical assistance. The Laboratory had been established in the early 1950's primarily to maintain the X-Ray equipment in the government's hospitals, but from 1955 onwards it took an increasing interest in radiation safety. From 1959 it provided the personnel to assist the Radiological Advisory Council appointed under the Radioactive Substances Act (1954) to implement the regulations which were gazetted in 1958. By the early 1960's, it was seen that separate organisations were needed and the two divisions were created.

Then, as now, the main use of ionising radiation was in medicine. There were only minor uses in industry and research. X-Ray equipment was located in hospitals throughout the State and in private clinics in Perth. Radium was the most important radioactive substance used in medicine but a variety of other radioactive isotopes were becoming available. The new field of nuclear medicine had been established and its growth continued throughout the decade. This period also saw great changes in the use of radioactive substances and X-Ray equipment in industry. Initially, industrial radiography was the main application but with the State entering the period of development of new mines and oil and gas fields, there was a rapid and sustained growth in the installation of control and analytical devices based on sources of ionising radiation. Whereas previously, the field work of the Division's officers had been mainly in hospitals and private clinics, it now spread throughout the mining and industrial areas.

In its first 10 years, the Division had a great impact on radiation doses to patients resulting from diagnostic X-Ray procedures. These doses were significantly reduced as a result of a two pronged approach, firstly through the modification of equipment to comply with international recommendations and secondly through the surveillance of the equipment and working procedures. The Division pioneered the improvement of radiation safety in the workplace by providing training courses for industrial personnel. In conjunction with the Department's radiographic staff, courses on basic X-Ray procedures for personnel from country hospitals were introduced achieving a marked improvement in the standard of radiography in the country. Later similar courses were introduced for city practices and currently five or six courses are held each year. The Film Badge Radiation Monitoring Service which began in the late 1950's and has continued to the present has had a very great impact on radiation doses received in the workplace. Knowledge of radiation exposure detected by film badges has been most beneficial in drawing attention to areas where working procedures could be improved and in providing evidence to radiation workers indicating that attention to radiation safety results in reduced doses.

In the late 1960's overseas reports were suggesting that new sources of radiation might be presenting a hazard to the public and the workforce. These were lasers, colour television receivers and microwave ovens. Australia did not have colour television at the time and when it did arrive, technological changes had removed the problem which had been evident in the U.S.A. Microwave ovens and lasers were not common in Western Australia, but the Division began equipping to meet any problems which might arise.

Monitoring of Perth's atmosphere and rain water for radioactivity was begun in 1969 at the time of mounting concern about atmospheric nuclear tests in the Pacific Region conducted by the French and has continued since then, the aim being to enable the Public Health Department to be alerted to any possible risk to the health of the State's population. The monitoring system provided an early warning of the arrival of fallout from atmospheric nuclear tests conducted in the southern hemisphere but at no time were levels of radioactivity measured such as to cause any concern about the health of the State's population.



In 1974, reports were reaching the Division that the Montebello Islands, approximately 80 kilometres to the West of Dampier and the site of the 1952 and 1956 British nuclear tests were being visited by residents of the adjacent mainland areas. The islands had been declared prohibited areas under Commonwealth Defence powers but there was no policing of this and warning notices on the islands had largely disintegrated. Officers of the Division made the first of a number of visits in 1974 and since then further visits have been carried out in conjunction with Commonwealth Departments to perform surveys and to gain information as background to preparing advice on the future of the islands.

In 1974, the main University of W.A. Medical School departments moved to the Perth Medical Centre where the Division is located and it was decided to establish a separate section of the Division to be responsible for radiation protection with the organisations on the site that were using radiation. These were the State Health Laboratory Services, the Sir Charles Gairdner Hospital, the University of W.A. Medical School and the State X-Ray Laboratory itself. In 1976 this was extended to include the nearby campus of the University of W.A., the University assisting with the funding of the office. This section now has 3 officers, as many as the whole division had in 1963 and it contributes to a high standard of radiation safety being achieved in the participating organisations.

In 1976, the Radiation Safety Act was proclaimed replacing the Radioactive Substances Act of 1954. The new Act formally extended the Division's area of concern to a new category of radiation producing device - the electronic product. The definition of "electronic product" can include television receivers, lasers and equipment which produces microwave or other radiofrequency radiation and equipment which produces ultraviolet and infra-red light. This has placed new demands on the Division, both in terms of equipment needed to monitor electronic products and on the time of officers to do this work.

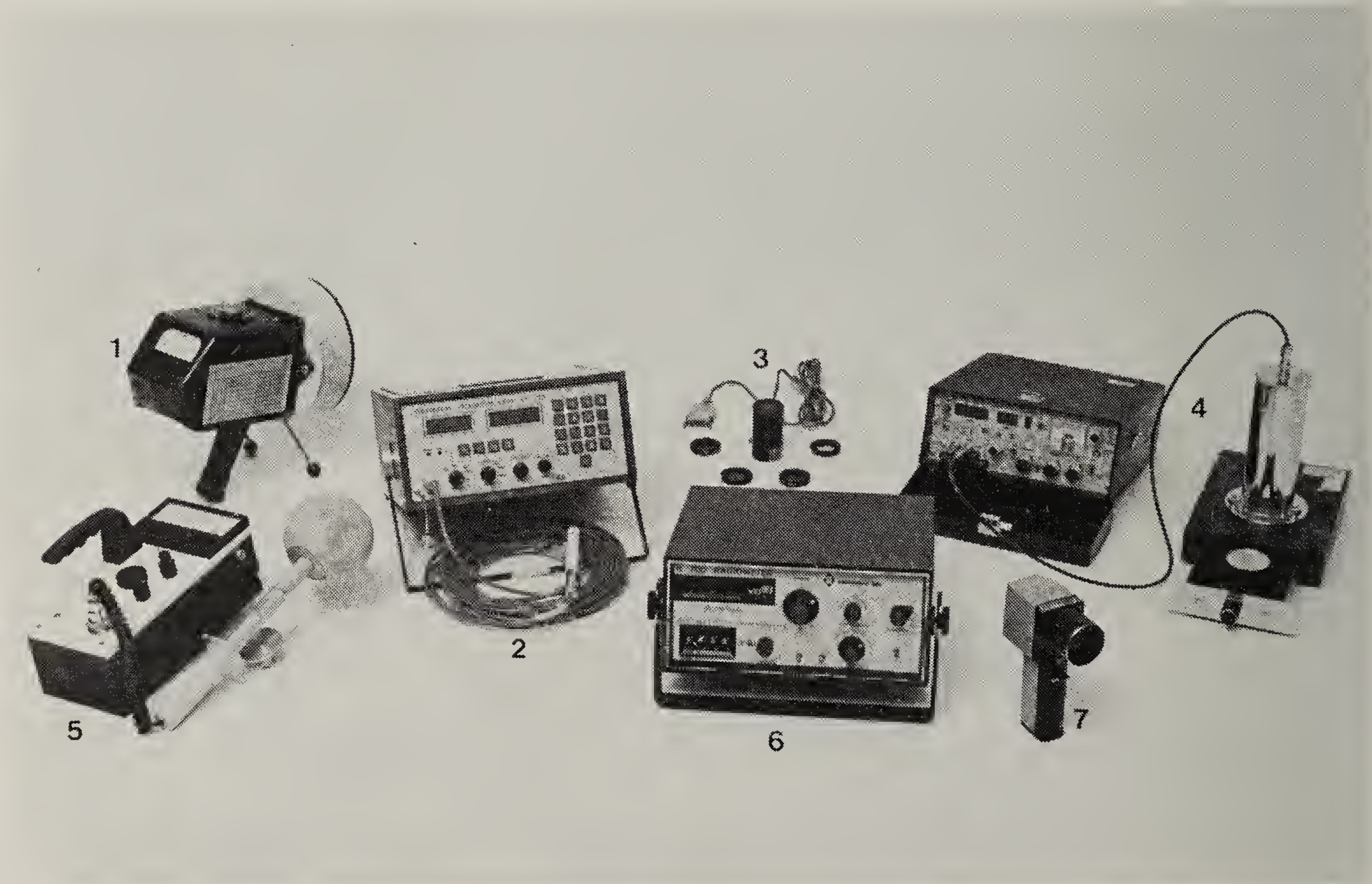
Through membership of national committees, expert working groups etc., officers of the Division have for many years played an important part in the development of national codes and standards. These have included the National Health and Medical Research Council codes on luminising using radioactive substances, the use of radiation gauges in industry, dental X-Ray equipment, measurement of leakage from microwave ovens, codes and guidelines issued by the Department of Home Affairs and Environment under the Environment Protection (Nuclear) Codes Act on the mining and milling of radioactive substances, disposal of wastes etc., and standards produced by the Standards Association of Australia on both fixed and mobile medical and dental X-Ray equipment.

From 1975, production of the radioactive mineral monazite which had been mined in relatively small quantities for many years began to increase rapidly and Western Australia is now the world's largest supplier. Processing and storing of this mineral can give rise to radiation protection problems and as production has grown, the Division's personnel have increasingly been involved in this area of radiation safety, many visits having been made to mine sites and processing plants and advice given on radiation safety to the mining companies. The Division was represented on a Committee which was appointed by the Radiological Council in 1982 to prepare a Code of Practice on Radiation Safety in the Mining and Milling of Mineral Sands.

The Division serves as the administrative arm of the Radiological Council, the statutory body appointed under the Radiation Safety Act. The Division administers a system of licencing and registration called for under the Act and provides the authorised officers appointed under the Act to inspect premises where radiation is used. The work of the Radiological Council is described in a separate report to the Minister for Health covering the calendar year to 31st December.

DIAGNOSTIC USE OF IONISING RADIATION

In common with most other radiation protection authorities throughout the world, the Division devotes a major part of its resources to surveillance of diagnostic radiation. Medical X-Rays have been shown by many surveys to make the largest contribution of all man made sources of exposure of the population to ionising radiation. Efforts to reduce radiation exposure of the public by giving attention to working procedures and ensuring that equipment complies with international recommendations can have a very significant effect in reducing radiation exposure. These measures together with structural shielding and protective devices also have a marked effect on radiation exposure of the radiation workers in this area. In 1983, the Division reported that it was confident that a reasonably high standard of radiation safety existed in W.A. in the diagnostic use of ionising radiation but that it was unable to carry out the necessary inspections with the desired frequency and that was being made difficult by the rapid increase in the number of diagnostic X-Ray units in the State. This situation has not changed.



Instruments Used By The Physics Division In The Field

1. X-and gamma ray dosemeter from the 1960's.
2. Farmer Sub Standard X-Ray Dosemeter for calibration of X-Ray equipment.
3. See (6).
4. Alpha particle counter for measurement of radio-activity of dust samples.
5. Microwave Monitor.
6. Radiometer for use with (3) to measure energy of laser beams.
7. Spot photometer for measurements with medical X-Ray equipment.

RADIATION PROTECTION PLANNING

An important feature of the Division's activities is the provision of advice to users of radiation equipment and to applicants in meeting the requirements of the Radiological Council and the legislation. It is considered highly desirable that planning to meet legal requirements occurs before premises are constructed or modified in order to save costly changes after the event.

FIELD WORK

There are almost 1000 locations throughout the State where radiation is used and officers of the Division make periodic visits in order to inspect the facilities to ensure that they comply with the regulations and that safe working procedures are followed. These visits have an important educational component with advice and instruction on safety matters being given. As previously reported, staff availability has limited the frequency of these visits to less than ideal.

RADIATION MONITORING

The Film Badge Service provided by the Division has already been mentioned in the introduction. Over 20,000 monitoring films are issued and assessed for radiation dose each year. The film badge provides a permanent record of personal radiation exposure and it enables the situations such as those where working procedures are unsatisfactory or where radiation levels are excessive to be detected and remedial action taken.

Statistics for the use of the Film Badge Service for the half year period of this report are given in the table below:

FILM BADGE RADIATION MONITORING SERVICE

1ST JANUARY 1984 - 30TH JUNE 1984

USER GROUP	NUMBER OF EMPLOYEES	FILMS	PERSONS MONITORED**
Dentists	475	1364	*
Chiropractors	37	153	50
G.P.'s	18	168	56
Industrial	75	1986	260
Radiologists	27	390	128
Veterinarians	101	960	320
Laboratories	13	111	37
Murdoch	4	102	34
Misc.	17	324	102
Services	2	6	2
Teaching	9	357	75
Universities	23	960	190
Hospitals	132	2532	561
TOTAL	933	9413	1815

*Dental practices use area monitoring, one film per X-Ray machine.

**Persons monitored on a regular basis. Additional persons are monitored intermittently.

The regulations under the Radiation Safety Act require users of radiation producing substances and equipment to have available radiation measuring instruments, and the Radiological Council calls for these to be kept in proper calibration so that they give a correct indication of radiation levels. Some instruments vary in sensitivity with time and regular calibration checks are essential. The Division provides a service for checking these instruments and in the six month period, 180 instruments were checked. The Division also calibrates superficial therapy X-Ray equipment used in private practice and hospitals and 3 of these units were calibrated in the 6 month period.

MEASUREMENT OF RADIOACTIVITY

It is an important part of the Division's capability to be able to measure and analyse samples for radioactive content. The samples are either collected by the Division's officers or requested from industry. The radioactive content of the samples of naturally occurring material can be quite complex and the necessary analytical methods are equally complex requiring computer methods to enable the results of the analyses to be calculated quickly.

EDUCATION

The Division's officers co-operate with the Mt. Lawley Technical College in providing radiation safety courses for industry. Courses for X-Ray operators in general practice are provided by the Division and in country hospitals in conjunction with officers of Hospital and Allied Services. Each year in February and March the Site Radiation Safety Office provides 4 short courses on the safe use of unsealed radioactive isotopes. This year there were 80 participants. One workshop on the transport of the mineral monazite was conducted for waterfront organisations.

The Division conducts examinations on behalf of the Radiological Council to enable licence applicants and radiation safety officers who undertake a self study programme to meet the requirements of the Qualifications (Radiation Safety) Regulations. 26 applicants were examined at 6 examinations during the half year.

VISITS OF NUCLEAR POWERED WARSHIPS

3 nuclear powered warships visited Western Australia during the 6 month period. During each visit, officers of the Division are on call should an emergency arise. In an emergency, officers of the Division will form part of the State Emergency response system supervised by the State Nuclear Ships Visits Committee.

MINING AND MILLING OF RADIOACTIVE SUBSTANCES

The Division has an active involvement in surveillance of radiation safety in the mining and processing of mineral sands and periodic visits are made to mining and processing areas and to areas where mineral sands tailings have been used as landfill. One officer of the Division is a member and another is Secretary of the Interim Mines Radiation Committee established by the government in 1983. This committee has been preparing terms of reference, and recommendations for legislation to establish a statutory board under the Mines Regulation Act. Three officers of the Division have been appointed Special Inspectors (Radiation) under the Mines Radiation Act.

STAFF AND FACILITIES OF THE DIVISION

Construction of an adjacent building to provide additional space for the Division began in February 1984. This is expected to be ready for occupancy during the second half of the year and will make a great contribution towards relieving the congestion that has been evident in the existing premises and should provide adequate laboratory and office space for the next few years.

It was reported in 1983 that scientific and technical staff numbers had not changed for some years and that the increasing pressures from mining, non-ionising radiations and the medical and industrial areas continued to grow. The Division cannot meet these increasing demands while maintaining the same level of efficiency and periodically priorities have to be established. These priorities do not always correspond with public perceptions of the dangers of ionising and non-ionising radiation.

During the past 21 years, the Division has been served well by its loyal and expert staff. Over the years, a number of former employees have gone overseas for further training and now occupy responsible positions elsewhere. It is gratifying that the Division and its personnel, both past and present, have been able to contribute so significantly to improving radiation safety in Western Australia.

STAFF OF THE STATE X-RAY LABORATORY : PHYSICS DIVISION

Front Row : L to R: P. Weineman, N. Barbara, B. Hunt, L. Davies, M. Aerts
Second Row: R. Gulland, J. McCormick.
Third Row : B. King, L. Toussaint, J. Brooks, S. Grow, B. Cobb.
Fourth Row: D. Hutchinson, R. Turner, M. Malaxos.
Back Row : P. Foley, M. Ralph, B. Hartley, J. Thwaites.
Absent : H. Dreyer, R. Breheny.

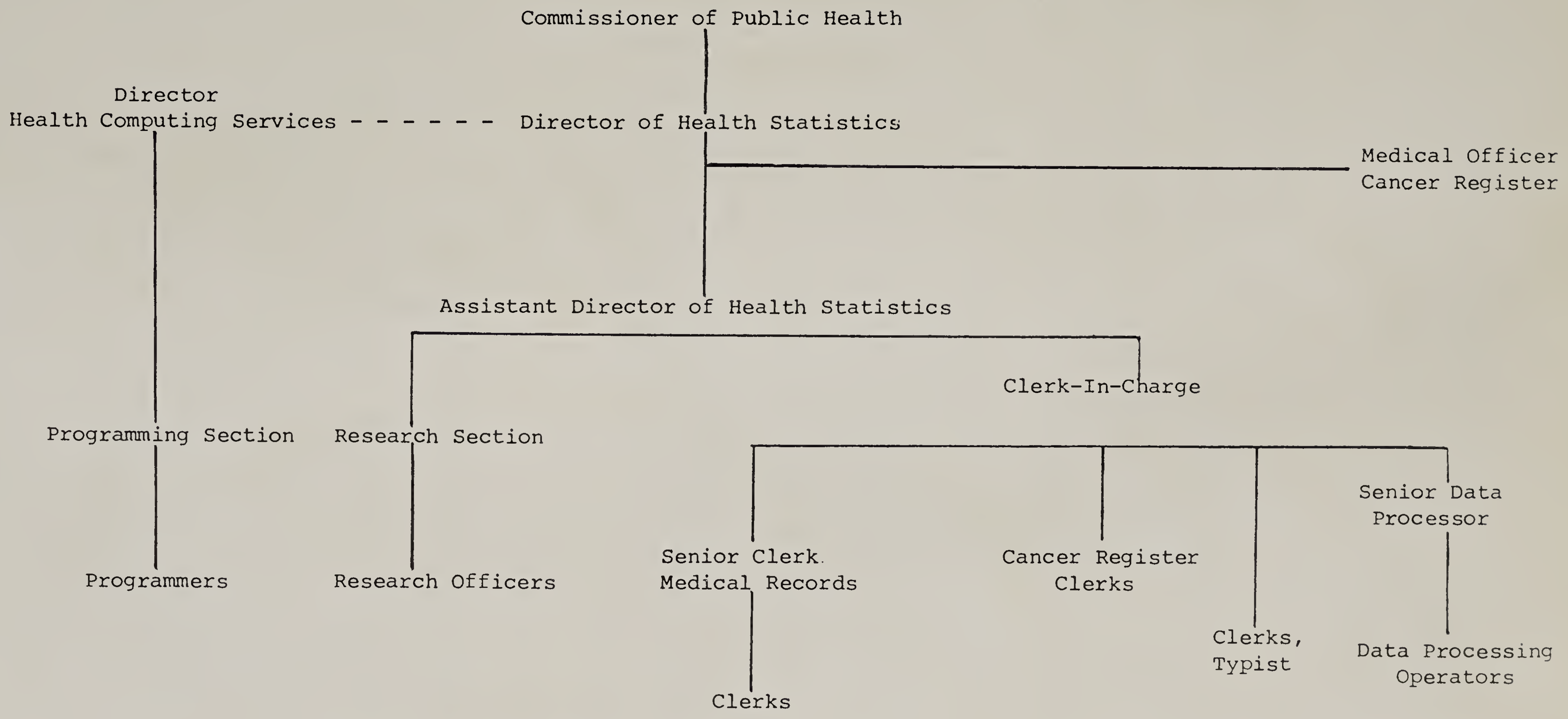
Appendix XVI

STATISTICS BRANCH

SENIOR STAFF

Acting Director : Dr. W.M. Hatton
Deputy Director : Vacant
Medical Officer, Cancer Registry
: Vacant
Assistant Director : Mr. B.H. Brooks
Clerk-In-Charge: Mr. N.G.C. Treleaven
Senior Clerk, Medical Records
: Miss S.A. Stevens
Supervisor, Data Processing:
Mrs. E. Clydesdale

STATISTICS BRANCH - ORGANIZATION CHART



STATISTICS BRANCH

HOSPITAL MORBIDITY SYSTEM

With only the final clean up of the 1983 data files to be undertaken, processing of the 1984 data was commenced during May. This is the first time that two years of data have been processed simultaneously and it should enable the lead time to completing the uptake of a year's data to be significantly reduced.

During the next year the system will be reviewed in light of past experience and the new requirements of the Health Department. This review should enable the hospital morbidity system to be a useful management as well as epidemiological data source.

Visits by the Clerk in Charge and the Senior Clerk Medical Records to hospitals to further an understanding of Branch functions and requirements, were first undertaken in 1982 when all metropolitan hospitals both private and public were visited. In 1984 these visits were extended to the more remote hospitals in the South West and there are plans to visit the hospitals in the Pilbara and Kimberley later this year.

Due to changes of staff and a perceivable drop in the quality of data received, some metropolitan and country hospitals were revisited.

The 1981 Hospital Morbidity Series A was prepared for printing and the initial tabulations for the 1982 report were run. These reports which summarise all short-stay hospital discharges by patient and hospital characteristics are now more timely and it is expected that future publications will be published during the following year to which the data appertains.

CANCER REGISTRY

Cancer notification became compulsory in August 1981 and the subsequent five months of the year were used to test and develop manual procedures for handling data. The design of the computer systems to handle Registry data was started in January 1981 and completed in October 1982. By November 1983 data from 1981 though not a complete year was on computer and accessible. By the end of 1983 the complete 12 months data from 1982 was on computer and formed the basis for the Registry's first report, a position paper for the proposed new Health Department. Two further reports from the Cancer Registry are in preparation. An Annual Report which analyses age and sex specific rates of cancer in Western Australia in 1982, highlights and discusses certain common cancers and indicates the 10 leading sites. Childhood cancers, aboriginal cancers and mortality from cancer are also discussed. The public health significance of cancer and the role of the Cancer Registry are indicated. The second report in preparation will include all available statistics from the registry for 1982 and 1983 and is intended as a reference work. As an adjunct to the general registry, a more specialised registry collecting more detailed information on mesothelioma cases is run by Mrs. Clarke-Hundley in co-operation with the Occupational Health Branch. Twenty new cases were recorded in 1983.

MIDWIVES DATA SYSTEM

The Midwives Data System continues to furnish valuable data for Health Service Planning and for the Congenital Malformations Register which is operated on behalf of the Public Health Department by the National Health and Medical Research Council Unit in Epidemiology.

Review of current documentation and guidelines, in the light of experience with the system, will be completed during the next year.

GENERAL

A substantial part of Branch activities is associated with the analysis of data collected on a routine basis and from special surveys. As in the past, extensive use has been made of the expertise available in the Branch by other health workers in Western Australia. The results of these analyses play an important role in health service planning in Western Australia.

The Branch continues to participate in the development of health information systems at National, State and Departmental level. The Branch looks forward to playing a significant role in the provision of information for planning and research in the reorganised health services.

Appendix XVII

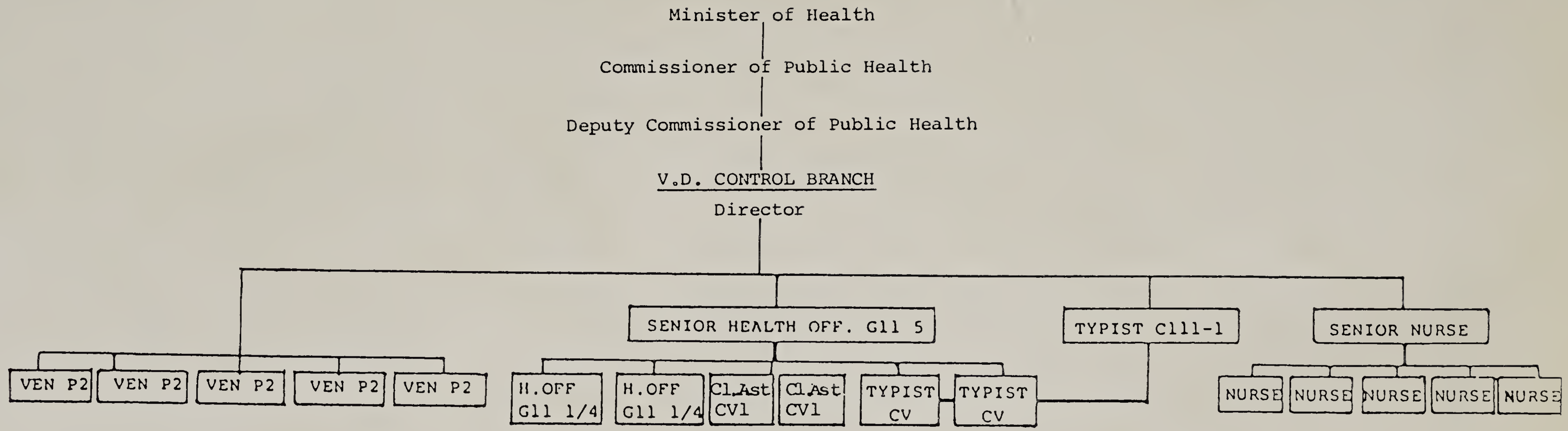
VENEREAL DISEASE CONTROL BRANCH

SENIOR STAFF

Director	: Dr. M.M. Gollow
Senior Health Officer	: Mr. G.C. Ross
Senior Nurse	: Sr. C. Graham
Secretary	: Mrs. J. Van Bavel

M.M. Gollow,
M.R.C.S. L.R.C.P. Dip. Ven. (Lond.)
Director

V.D. CONTROL BRANCH - ORGANIZATION CHART



VENEREAL DISEASE CONTROL BRANCH

Notifications have, during this period, for the first time, been divided into age brackets from 0-65 years plus.

There were a total of 963 notifications of which

834	for gonorrhoea
109	for syphilis
16	for granuloma inguinale
4	for chancroid

The age group breakdown for this was:

0-14 years	9
15-19 years	215
20-24 years	313
25-29 years	169
30-34 years	107
35-39 years	64
40-44 years	39
45-49 years	26
50-54 years	5
55-59 years	6
60-64 years	8
Over 65 years	1
Age not Stated	1

Division of notifications into sexes:

Males	615
Females	312

V.D. Clinics total attendances	23,122	
Represented by:		
69 Moore Street Clinic	20,333	(88%)
Queen Elizabeth II Medical Centre Clinic	1,636	(7%)
Fremantle Hospital Clinic	1,153	(5%)

Diagnosis of venereal diseases at the three clinics were:

Gonorrhoea	455
Syphilis	46

Health officers at 69 Moore Street Clinic interviewed 2966 patients of which;

Gonorrhoea patients interviewed	429
Gonorrhoea patients' contacts presenting	254
Gonorrhoea diagnosed in contacts presenting	232
Syphilis patients interviewed	27
Syphilis patients' contacts presenting	19
Syphilis diagnosed in contacts presenting	10

Laboratory.

The laboratory at the V.D. Control Branch, which is part of the State Health Laboratory Services, has performed to their usual high standard during this period. There were 28 detections of Beta Lactamase producing gonococci (25 male, 3 female). Eleven of the 28 were detected amongst the local population. These figures are comparable to the same period last year.

Colposcopy

The format of the work in the Colposcopy Clinic continued as in previous years.

Regional

General activities continued as in previous years with visits to Derby, Broome, Kalgoorlie, Warburton, Jamieson, Johnson, Wingalina, Busselton, Margaret River, Augusta, Looma and Mowanjum.

Interstate

The Director attended the N.H. & M.R.C. Workshop on Sexually Transmissible Diseases in Melbourne, and the National Venereology Council of Australia meeting in Brisbane. At these venues specific conferences were attended on A.I.D.S. and the Director gave lectures at the Princess Alexandra Hospital for Children in Sydney. He also attended sessions of the Australian Society of Microbiology.

Hospitals

The association of the V.D. Control Branch with Royal Perth Hospital, Queen Elizabeth II Medical Centre, Fremantle Hospital and King Edward Memorial Hospital continued as before.

Education

Medical student tuition has entered its sixth year, and an ongoing format has been established.

Several orientation days were held for community and child health nurses, in addition to trainees from Ngala and several other postgraduate groups.

During this period, 160 lectures and 140 tutorials were delivered.

This year, for the first time, the VD Control Branch took part in the in-service training of Aboriginal health workers in the course organised by the Aboriginal Medical Service of Perth.

Control

Venereal disease control progresses on the educational path as in former years. Notifications are similar to that of 1983. However, the preparation of notifications from private practitioners is beginning to increase, and a small drop in patients attending the V.D. Control Branch has occurred. This is the predicted course in a venereal disease control programme based on ensuring a general increase in level of expertise of all practitioners in the community. One would expect this trend to continue slowly over the years.

I am sincerely grateful to all personnel in the Public Health Department who have assisted with venereal disease control during the past 4½ years of my Directorship, and in particular to the staff of the V.D. Control Branch whose team effort and level of expertise is surpassed by very few areas of the rest of the world.

Appendix XVIII

ANAESTHETIC MORTALITY COMMITTEE REPORT

Chairman, Dr. N.J. Davis

The Committee did not meet again until after June 30, 1984. A further 30 cases were referred to the investigator and of these two were deemed necessary for referral to the Anaesthetic Mortality Committee.

The Committee continues to function well with a noted improvement since its inception in the standard of record keeping and in the standard of reports to the Committee.

Appendix XIX

CONGENITAL MALFORMATIONS REGISTER

MEDICAL OFFICERS

Dr. F.J. Stanley
Dr. C. Bower
Dr. V.P. Waddell

NURSE

Sr. B. Chester

CLERK

Ms. R. Johnston

CONGENITAL MALFORMATIONS REGISTER

The Western Australian Congenital Malformations Register was established to collect data on congenital malformations occurring in children born in Western Australia on or after January 1, 1980. Children born out of the State but residing here are also included.

Congenital malformations are defined by the W.A. Register as any defects probably of prenatal origin. Thus, structural, (eg. spina bifida) chromosomal (eg. Down's Syndrome) and biochemical (eg. G6PD - deficiency) defects are included. Excluded are many minor malformations that are neither disfiguring nor require treatment (eg. tongue tie, skin tag).

Data are derived from the Midwives' Notification of Birth forms, from death certificates and from voluntary notifications sent by hospital nurseries, child health sisters, private practitioners etc. Data are treated in a strictly confidential manner.

The case information is continuously revised and updated as more details come to hand. This report summarises the data received by June 1984. These data are necessarily incomplete as malformations in children born as long ago as 1980 continue to be diagnosed and notified to the Register. Since the Register was started, certain categories of malformations have been added (eg. vesico-ureteric reflux) and others have been taken out (eg. inguinal hernia). For these reasons, figures quoted here may differ from those in previous reports.

Table I shows the total number of cases notified to the Register. Ascertainment will be most complete for 1980.

TABLE I

TOTAL CASES - 1980-1983

Year	Total Births	Cases Notified*	Percentage of W.A. births with a malformation
1980	20,788	869(2)	4.2%
1981	22,065	730(0)	3.3%
1982	22,422	719(1)	3.2%
1983	23,013	739(1)	3.2%

*Figures in parentheses refer to children born out of W.A. but residing here. These children have been excluded from the calculation of percentage of W.A. births with a malformation.

Table II shows the distribution of cases by race, sex and plurality. Whilst the distribution for race and plurality mirrors that for total births, a significant excess of males with malformations is noted. These trends have been observed elsewhere in the world.

TABLE II

RACE, SEX PLURALITY

		Births with Congenital Malformations			
	All Births	1980	1981	1982	1983
Race					
Non-Aboriginal	95%	93.9%	94.9%	93.3%	83.4%
Aboriginal	5%	4.9%	4.5%	6.4%	4.5%
Unknown	-	1.2%	0.5%	0.3%	12.2%
Sex					
Male	51%	59.1%	58.2%	60.4%	55.1%
Female	49%	40.9%	41.4%	39.1%	44.1%
Indeterminate	-	-	0.3%	0.1%	0.1%
Unknown	-	-	0.1%	0.4%	0.7%
Plurality					
Single	98%	99.1%	98.1%	97.4%	97.0%
Multiple	2%	0.9%	1.9%	2.6%	2.9%

[1] The sex of fetuses aborted because of lethal malformations is usually unknown.

The diagnostic information is grouped into major and minor categories based on a classification from the Centers for Disease Control, Atlanta, Georgia, U.S.A. Diagnoses by grouped categories are shown in Table III. The majority of cases have a major defect as defined by the classification.

TABLE III

DIAGNOSES BY GROUPED CATEGORIES

	1980	1981	1982	1983
Single minor	81	68	71	45
Multiple minor	2	5	5	8
Single major ± minor	656	529	521	539
Multiple major ± minor	130	128	122	147
TOTAL	869	730	719	739

A number of studies have been and are being conducted based on the Register data. Two of these will be reported here:

1. Congenital Malformations in Infants Born to Diabetic and Epileptic Mothers in W.A., 1980-1982.

   Infants born to diabetic mothers and epileptic mothers have been reported to be more at risk of having a congenital malformation than the general population. In the case of diabetes, it is thought that the diabetic milieu during embryogenesis is responsible for the anomalies rather than any genetic component. In the case of epilepsy, it is not known whether the pathogenetic mechanism is an effect of the epilepsy or of the drugs used to control it.

   Using data from the Register and from the Midwives' Notification of Birth system the relationship between the two disorders and malformations was described for W.A. The results are summarised in Table IV.

TABLE IV

INFANTS WITH MALFORMATIONS BORN TO DIABETIC MOTHERS AND EPILEPTIC MOTHERS IN W.A., 1980-1982

	Diabetic	Epileptic	All W.A. Mothers
No.	19	9	2099
%	8.4%	2.7%	3.2%
Relative Risk	2.6($p < 0.01$)	0.8(NS)	1.0

This analysis confirms that diabetes in pregnancy is an important and significant risk factor for congenital malformations in the offspring. The same association was not found for epilepsy and there are several reasons why this might be so.

The study of malformations in infants born to mothers at increased risk, such as the diabetic mothers, may help to elucidate the pathogenetic mechanisms of malformations in all infants.

2. Congenital Rubella Syndrome in W.A., 1970-1983

Infants of mothers who had a rubella infection early in the pregnancy are at risk of being born with the Congenital Rubella Syndrome. Manifestations of this syndrome include heart defects, blindness, deafness, brain damage and thrombocytopenia. In an effort to prevent the syndrome occurring a vaccination programme was introduced in W.A. in 1971. All schoolgirls in year 8 (age 12-13) were offered rubella vaccination such that they would be immune to rubella through their childbearing years.

Using multiple sources of data the numbers of children born in W.A. with the Congenital Rubella Syndrome between 1970 and 1983 were ascertained. The results are shown in Table V. There has been a sustained drop in numbers in recent years. It is thought that this improvement is due, at least in part, to the vaccination programme, but the number of terminations of exposed fetuses is unknown.

TABLE V

BIRTHS WITH THE CONGENITAL RUBELLA SYNDROME, W.A., 1970-1983

Year	No. Births with C.R.S.	Rate per 100,000 Births
1970	23	105.0
1971	21	85.6
1972	4	17.8
1973	9	43.3
1974	13	63.5
1975	9	43.7
1976	3	14.4
1977	1	4.8
1978	-	-
1979	2	9.7
1980	2	9.6
1981	-	-
1982	1	4.5
1983	1	4.3
TOTAL	89	

Appendix XX

MATERNAL MORTALITY COMMITTEE REPORT

Chairman, Professor J.D. Martin

For the period under review, 1 January to 30th June, 1984, as far as can be determined, there have been no maternal deaths.

However, when reviewing death certificates at a state level, occasionally deaths are discovered which have not been notified to the Commissioner of Health and this could alter the situation as reported.

Appendix XXI

PERINATAL AND INFANT MORTALITY COMMITTEE REPORT

Dr. V.P. Waddell

The Perinatal and Infant Mortality Committee of Western Australia is a statutory body which conducts confidential enquiries into selected perinatal and infant deaths each year. The objective of the Committee is to increase the quality of medical care of women in pregnancy and labour and of their babies up to the age of one year. This objective is to be achieved by educational efforts directed towards individuals and groups. The Committee produces an Annual Report which includes Educational Papers written by experts; these papers are pertinent to the causes of deaths occurring in that year. Copies of the Annual Reports are available from Dr. V. Waddell, 60 Beaufort Street, Perth, 6000.

1983

There were 23,013 babies born in Western Australia in 1983. The stillbirth rate was 6.8/1000 total births, the neonatal mortality rate was 4.7/1000 live births and the post-neonatal infant mortality rate was 3.3/1000 live births.

A confidential register is kept of all stillbirths and infant deaths occurring in Western Australia each year. The 1983 register has 392 entries. The categories of cases selected for investigation in 1982 were:-

(1) All singleton stillbirths weighing 2000g or more at birth who were not lethally malformed.

(2) All twins and other multiple stillbirths weighing 1000g or more at birth who were not lethally malformed.

(3) All Aboriginal infant deaths who were not lethally malformed nor cot deaths.

(4) All singleton neonatal deaths weighing 2000g or more at birth and multiples weighing 1000g or more who were not lethally malformed nor cot deaths.

(5) All infant deaths from meningitis.

There were 84 babies in these categories in 1983. Sixty of these case investigations have been completed to date and of these, 47 were found to be unavoidable by the Committee and 13 potentially avoidable. A death is considered "potentially avoidable" if the Committee decides that the way in which it was managed represents a departure from acceptable clinical practice: this does not necessarily mean that the death could have been avoided.

The 13 potentially avoidable deaths identified so far for 1983 were due to:-

1. No investigation of recurrent glycosuria; pregnancy-induced hypertension and post term. (Antepartum stillbirth at 41 weeks gestation.)

2. No monitoring of high-risk pregnancy (mother had a poor obstetric history) hypertension and post term. (Antepartum stillbirth at 42 weeks gestation.)

3. Pregnancy-induced hypertension: no action taken: abruption. (Antepartum stillbirth at 38 weeks gestation.)

4. Proteinuria at 41 weeks: no action taken. (Antepartum stillbirth at 42 weeks gestation.)

5. Pregnancy-induced hypertension: no action taken. (Antepartum stillbirth at 38 weeks gestation.)

6. Pregnancy-induced hypertension: no action taken. (Intrapartum stillbirth at 36 weeks gestation.)

7. Prolonged second stage of labour due to cephalo-pelvic disproportion: inappropriate action taken. (Neonatal death on first day after delivery at 38 weeks gestation.)

8. Antepartum haemorrhage due to vasa praevia. (Neonatal death on 1st day after delivery at 38 weeks gestation.)

9. Twin pregnancy with pregnancy-induced hypertension. (Neonatal death on second day after delivery at 39 weeks gestation.)

10. Mother would not co-operate with medical management; delivery in a private house. (Neonatal death on second day after delivery at 37 weeks gestation.)

11. Baby not assessed adequately in the early neonatal period: congenital pneumonia. (Neonatal death on second day after delivery at 38 weeks gestation.)

12. Pregnancy-induced hypertension and post term, perinatal asphyxia. (Neonatal death on third day after delivery at 42 weeks gestation.)

13. Essential hypertension and post term. (Neonatal death on seventh day after 41+ weeks gestation.)

1984

To date, 198 stillbirths or infant deaths have been notified to the Committee using the same criteria as in 1983; 47 of these deaths have been selected for investigation.

Appendix XXII

INCIDENCE AND MORTALITY OF NOTIFIABLE DISEASES

Diseases Notifiable	1981		1982		1983		1984 (To 30th June)	
	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths	Cases Notified	Deaths
AIDS	-	-	-	-	-	N/A	4	N/A
Amoebiasis	4	-	-	-	3	"	3	"
Ancylostomiasis	-	-	-	-	1	"	-	"
Anthrax	-	-	-	-	-	"	-	"
Arbovirus Encephalitis	1		-		-	"	2	"
Bacillary Dysentery(Shigellosis)	74	1	87	-	89	"	27	"
Bilharziasis	-	-	1	1	-	"	-	"
Brucellosis	-	-	-	-	1	"	-	"
Cholera	-	-	-	-	-	"	-	"
Diphtheria	-	-	-	-	-	"	-	"
Encephalitis Lethargic	1	-	-	-	-	"	-	"
Filariasis	-	-	-	-	-	"	-	"
Homologous Serum Jaundice	17	-	20	-	16	"	40	"
Hydatid	-	-	-	-	-	"	1	"
Infective Hepatitis	143	4	134	4	156	"	30	"
Leprosy	8	-	14	-	17	"	1	"
Leptospirosis	11	-	5	-	9	"	4	"
Malaria	30c.o.s.	-	20	1	34	"	19	"
Meningococcal Infection	1	-	1	1	2	"	2	"
Ornithosis	-	-	-	-	-	"	7	"
Paratyphoid	3	-	-	-	-	"	-	"
Plague	-	-	-	-	-	"	-	"
Poliomyelitis	-	-	-	-	-	"	-	"
Puerperal Fever	-	-	-	-	-	"	-	"
Relapsing Fever	-	-	-	-	-	"	-	"
Salmonella Infection(A)	16	-	97	-	93	"	54	"
Scarlet Fever	3	-	2	-	6	"	-	"
Small Pox	-	-	-	-	-	"	-	"
Tetanus	-	-	-	-	-	"	-	"
Tuberculosis	160	-	136	-	152	"	68	"
Typhus Fever	-	-	1	-	-	"	-	"
Typhoid Fever	-	-	2	-	-	"	1	"
Yellow Fever	-	-	-	-	-	"	-	"

cos - Contracted out of State
(A) - Other Salmonella Infection

Appendix XXIII

PUBLIC HEALTH DEPARTMENT

Financial Statement for Period January 1 to June 30, 1984

EXPENDITURE		$ 35,948,807
Less Laboratories Rebates		
Salaries	$ 104,858	
Contingencies	$ 460,691	$ 565,549
NET EXPENDITURE		$ 35,383,258
REVENUE		$ 10,372,726

PUBLIC HEALTH DEPARTMENT

EXPENDITURE FOR PERIOD JANUARY 1 TO JUNE 30, 1984

1.	SALARIES		
	Administration including "Other Health Services"		3,812,382
2.	ADMINISTRATION EXPENSES		383,124
3.	PAYROLL TAX		1,245,546
4.	GOVERNMENT PRINTER		22,652
5.	CHILD HEALTH SERVICES		
	Salaries	2,930,343	
	Generally	327,725	3,258,068
6.	DENTAL HEALTH SERVICES		
	Salaries	4,327,709	
	Admin. Generally	479,461	
	Training Centres	44,006	
	Therapy Centres	348,567	
	Dental Clinics	90,136	5,289,879
7.	SENIOR CITIZENS SERVICES		
	Salaries	47,224	
	Generally	541,946	589,170
8.	COMMUNITY HEALTH SERVICES		
	Salaries	2,825,304	
	Generally	1,464,743	4,290,047
9.	COMMUNITY HEALTH PROGRAMME		
	Salaries	2,489,942	
	Generally	2,270,480	4,760,422
10.	LABORATORIES		
	Salaries	5,303,751	
	Generally	2,866,116	8,169,867

11. OTHER HEALTH SERVICES

Health Services Centre	16,731	
Pharmaceutical Services	15,949	
Statistics	140,787	
Health Surveyors Inc. Other Inspection (KY)	66,073	
Pest Control	12,380	
Occupational Health	55,091	
Clean Air	66,495	
Noise Abatement	12,643	
Physics Division	74,922	
V.D. Control	63,853	
Fly Eradication	5,000	
Health Services Planning & Research	95,500	
National Diseases Control	87,860	
Family Planning	24,000	
Epidemiology	66,976	
Inspection Services - Professional	4,395	808,655

12. T.B. CONTROL

Salaries	415,630	
Generally	121,130	536,760

13. MEAT INSPECTION

Generally	311,000

14. EDUCATION SERVICES

Health Education

Salaries	127,522	
Generally	28,277	155,799

Audio Visual

Salaries	187,298	
Generally	59,004	246,302

Library Services

Salaries	142,751	
Generally	72,920	215,671

Drug Education

Salaries	56,396	
Generally	23,414	79,810

Education Services Branch

Generally	19,821 (Credit)

	Staff Development Unit SDA Commonwealth Funding			
	Salaries	71,417		
	Generally	6,951	78,368	
	Staff Development Unit SD State Funding			
	Salaries	142,703		
	Generally	27,764	170,467	
	National Employment Strategy For Aboriginals			
	Salaries	3,933		930,529
15.	DERBY LEPROSARIUM			
	Salaries	153,747		
	Generally	161,659		315,406
16.	ANTI-SMOKING PROGRAM			
	Generally			1,225,300
		GRAND TOTAL		$ 35,948,807

PUBLIC HEALTH DEPARTMENT

REVENUE FOR PERIOD JANUARY 1 TO JUNE 30, 1984

LICENCES		
Anatomy	224	
Fumigation	424	
Poisons Act	34,447	
Radioactive Substances Act	25,163	
Optical Dispensers	35	
Private Hospitals	360	
Clean Air Act	40,568	101,221
FEES		
Fish Inspection	15,221	
Building Inspection	2,645	
Perth Medical Officers	701	
Pest Control Collections	4,294	
Pesticide Registration	33,987	
Septic Tank Plans	27,454	84,302
MISCELLANEOUS		
Other	25,275	
Busselton Health Centre	4,511	
Mandurah Health Centre	4,021	
Karratha Health Centre	9,879	
South Hedland Health Centre	19,222	
Geraldton Health Centre	20,445	
Kwinana Health Centre	565	
Lockridge Health Centre	3,750	
X-Ray Examinations	20,504	
Recoup Inspection Services	1,500	
Sale of Publications - Health Education	158	
Audio Visual Charges	34,648	
Calibration of Instruments	801	
Subsidised Insurance Scheme	11,276	
Derby Leprosarium	52,711	
Film Badge Service	8,439	
Anti-Smoking Program	16,067	233,772
COMMONWEALTH GRANT		8,328,078
LABORATORIES (Fees and Services)		1,544,594
DENTAL (Fees)		80,759
GRAND TOTAL		$ 10,372,726

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